

# Journal

## OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

AVMA Convention—Philadelphia, August 18-21, 1958

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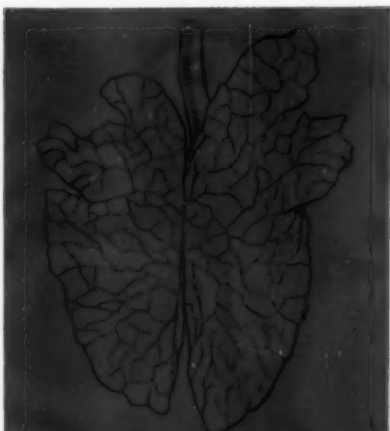
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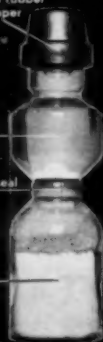


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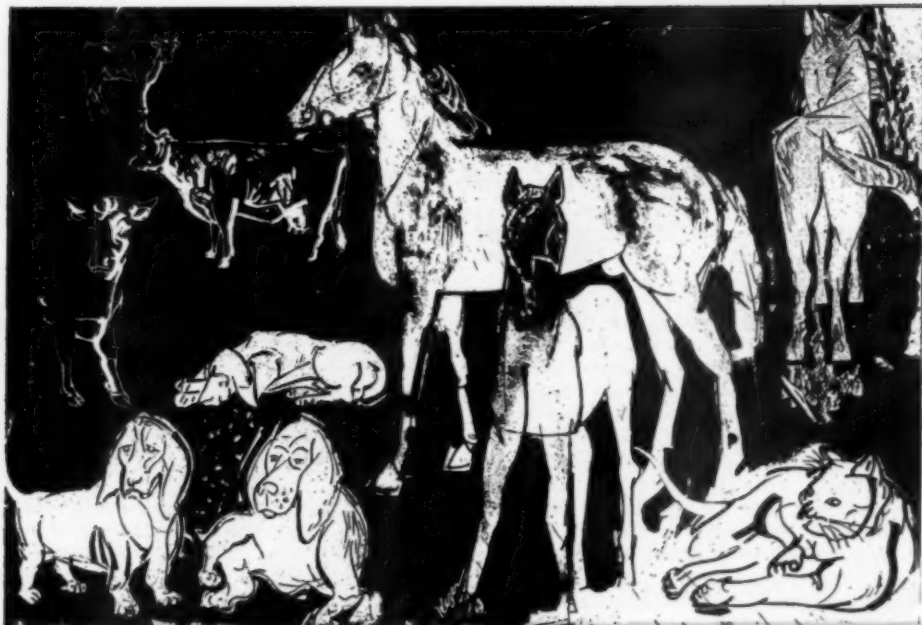
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## *The Role of State Board of Examiners in Professional and Public Relations*

C. W. Bower, chairman, American Boards of Veterinary Medical Examiners, Topeka, Kan.

Presented at the AVMA Public Relations Conference, Cleveland, August 18, 1957

A dog-food processing firm launched a new product on the market. An extensive, well planned, and well executed publicity campaign had been conducted. Elaborate advertising copy in newsprint, radio, and television was a daily occurrence. When the much publicized and advertised product was finally offered to the public, it took only a short time for results. To the manufacturer's amazement, the product fell flat; it was a dud. Why didn't the dog-owning public return for more? There was just one thing the overly enthusiastic promoters overlooked. The dogs would not eat it.

This illustrates one of my points for discussion—the individual. Regardless of the program that we have in public relations or the thousands of dollars that we may spend on it, there is one important factor, and that is the individual.

Regardless of the type of the public relations program, the individual veterinarian must be inculcated with the basic principles involved in good public relations. No public relations program is ever any better than the conduct of the individual veterinarian. Milton Leonard said: "Public relations, like freedom, is everybody's job. And no group action can compete with the activities of the local man to mold opinions of his neighbors."

Influence may be either good or bad. Good influence spreads. Bad influence is destructive and will leave its ugly mark on a community, in spite of the fact a good public relations program is in effect. Organized public relations must simply live down the effects of bad influence by individuals.

Professional relations, as referred to in this discussion, pertains to the concern of fellow veterinarians in the several branches of veterinary medicine. If we were to select a rule for professional relations, the Golden Rule would be our choice. If this rule were followed, there would be little doubt of having good professional relations.

Another value extremely important for good professional relations is humility. Make the right estimate of one's self. Forget the importance of self, but magnify the importance of others.

True helpfulness and the spirit of brotherly love always makes for better relationships.

The public is more sympathetic towards a profession that has a strong code of ethics, one which the individual members live up to. While we are one of the oldest professions in history, we shall be weak as long as our ethical behavior is weak.

Chief Justice Earl Warren is fond of a warm, little story about three workmen constructing a building. A passerby asked what they were doing. Answered the first, "I'm following my trade." Said the second, "I'm making a living." But the third replied, "Sir, I'm building a temple."

Are we just working at our profession? Are we using our profession to make a living? Or are we spreading the mortar and laying the marble blocks of a temple, a temple of veterinary medicine? The reason you are here today is that you are not just making a living; you are building a temple. There are many men who are not here today who are dedicated men; they are dedicated to veterinary medicine. They are not using it merely to make a living, but are really building a temple.

Practitioners, college professors, and regulatory and commercial veterinarians will enhance relationships by consulting each other more frequently. Veterinary medicine is too broad for any one person to know everything about it. Professional life is too strenuous. Consulting with our fellow veterinarians is one way to relieve the pressure and, at the same time, establish a fine relationship.

The responsibilities of the individual to the public has been brought out here today. It is not enough for us to say, "I have gone as far as I can go." That isn't enough



## Hang together... or, we hang separately!

Cooperation is a situation where people work together. Curiously enough, it can't be bought, sold or created by force. But fear of consequences can and often does bring people closer together—especially for the solution of a common problem.

The growing use of veterinary biologics by untrained laymen presents a serious problem to both the veterinarian and the ethical house that sells only to the profession. If such practices continue to flourish and grow, could it not be detrimental to the veterinarian, the ethical supply house and to the entire livestock industry?

Fortunately, there is a logical way you can help. It is simply this: Every time you place an order, ask yourself these questions: "Will this order encourage the use of veterinary supplies by laymen? Does the company that fills it sell only to graduate veterinarians?"

Think about that for a bit . . . then go ahead and order. We have confidence in your good judgment. That's why we have cast our lot with the graduate veterinarian. We're sure you realize our common destiny.

Figuratively speaking, either we hang together—or we hang separately!

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Corynebacterium-Pasteurella Bacterin  
Hemorrhagic Septicemia Bacterin  
Mixed Bacterin (Bovine) Formula 1  
Mixed Bacterin (Bovine) Formula 2  
Mixed Bacterin (Bovine) Formula 3  
Mixed Bacterin (Ovine) Formula 1  
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for the public. There are too many men in our profession and in other professions, who are taking the things that are easy to take. We are not discharging our responsibilities if we give up that easily.

The better our relationships, the stronger our ethics, the stronger will be our profession, and it will be held in higher esteem by the public.

Public relations is different in that our moral conduct is viewed by the public and, from that conduct, an opinion of our profession is formed. It may be good or it may be bad. That is up to each one of us individually.

Ramsey defines public relations as "making friends for yourself, your position, and your profession. It encompasses acts of the professional man in contact with others. It is ever-present 24 hours a day, seven days a week."

What are some of the attributes of veterinarians that favorably influence the public? Probably the old cliché, "service with a smile," never had a more appropriate place than in modern veterinary medicine. Service? Yes, we must give service even if it costs us some profit and it may mean any hour of the day or of the night. "Inconvenient," you say? Yes, but let's not get ourselves into a position where we will not get up in the middle of the night or otherwise inconvenience ourselves to relieve the suffering of an animal or soothe the nerves of a concerned owner. Some have said, "There is no sentiment in my business." But, each year we learn more and more that a practice is built on sentiment. Without it, we would have few clients. We are, in effect, servants of the state as are all altruistic professions. We are educated by the state and we are licensed by the state. Our duties are to preserve essential property and the public health.

Our conduct, our knowledge, and our skill make up the yardstick by which the public measures the worthiness of our profession. There are those who will say, "I must make money, lots of money. My expenses are heavy, and I must lay up my fortune while I am young. Now I am a successful practitioner, I can get big fees. Why not take advantage of it?"

Yes, anyone can be well-heeled if he is the kind of a heel who doesn't mind exploiting others. The trouble with some veterinarians today is that they are spelling

"success" with every "s" turned into a dollar sign. They should remember that he profits most who measures success not by dollars but by love and understanding—love for animals and understanding of the owners' problems.

The public likes compassion for themselves and their animals. A sincere pat on the head of a sick animal when it is in your care pays big dividends, not only from the owner but also from the animal. A contented, happy animal will respond better to treatment than a suspicious, frightened one.

Furthermore, we must keep clean our person, our instruments, our offices, and our hospitals. The body is the shell of the soul and the dress the husk of the shell; however, the husk often tells what the kernel is. The consciousness of clean clothes is in and of itself a source of moral strength, second only to a clean conscience.

We must not use profanity in the presence of a client. Some are actually hurt by hearing profanity. We must respect their feelings.

Of course, alcohol in any form should not be used while meeting clients. Tobacco, likewise, should be limited. I wonder how often we are careless in lighting a cigarette in the presence of a client, or while examining a patient, and yet there are many people who are allergic to tobacco, particularly cigarette smoke.

Always keep documented case records. Nothing instills greater confidence in an owner than to know a careful, accurate record is being kept of their animal, and of the drugs which are dispensed.

We must keep improving our knowledge. When any man tells you that he has no time to read, you can be sure he is committing mental suicide. It makes no more sense than the man who says, "I have no time to eat."

Now, how can the state boards help to encourage better professional and public relations? There are several ways. First, the state boards have the last chance with the graduating class. For four years they have listened to their professors and instructors. Early in their college career they probably did not take too seriously what teachers told them about professional conduct but, as graduation approaches, they are eager to hear more about ethics and the art of dealing with the public.

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## AVMA REPORT—Continued

students not getting too much in college about public relations and ethics. That is not my feeling. The colleges are training men in public relations, and they are training men in ethics. No one can realize that more than one who has been working with graduates for a number of years. There is a great improvement. From my experience, I believe the colleges are doing a great deal to educate students in professional relations, internal as well as public relations. Some of you men who are on state examining boards should accept invitations to address AVMA student chapters on professional and public relations. You will find that you will have an attentive audience.

Nearly all state boards now have time set aside for oral testing and counseling, and those boards that do not should seriously consider it. While examiners refrain from discussing the answers to questions of applied veterinary medicine with the applicants, because he is not the teacher and does not wish to disturb relationships between college staffs and examiners (for, after all, answers could be a matter of individual opinion), nevertheless, a portion of the time allotted for oral examination is used for counseling. The applicant is encouraged to ask questions, particularly concerning professional conduct, advertising, signs, letterheads, publicity, newspaper articles, et cetera. This gives the examiner an excellent opportunity to discuss proper relations with fellow veterinarians in all branches of veterinary medicine, and to point out that a veterinarian is a key man in his community, respected in proportion to the way he conducts himself. His activity in civic clubs, his community, and church are discussed. New graduates will frequently want to use more than the time allotted. Some will seek appointments after the examination session to continue their discussions.

In addition, the American Animal Hospital Association conducts an essay contest every year on some phase of ethics. This has stimulated students to think increasingly on this particular subject.

Many boards have questions in their examination on ethics, particularly in the oral section of the test. There will be some hypothetical questions raised, and they will

ask the applicant his answer to these questions.

In our board, we do not use these questions to grade the applicants, but to stimulate thought, to see how they are thinking. By asking him questions or discussing questions on professional and public relations, we find out what his philosophy is. By knowing what his philosophy is, we can evaluate better what kind of a man he will be in a certain community, and whether he will be a key man in that community.

Many applicants for state licenses have publicity, newspaper articles, and public information confused with public relations. These counseling periods help to clarify these matters and start him in the right direction.

Dr. Ralph W. Sockman, a noted New York City clergyman, says: "Men are good by spirit and not by law. There is no goose-stepping goodness. Unless we live up to the spirit of a good life, we shall live down to the level of mental slavery and moral mediocrity."

It is essential for examiners also to watch their conduct for good relations with applicants. Be human, not aloof and hard-boiled. Be firm, but gentle and accommodating. We never know when our actions may be guiding someone. Even our lives may be a model for someone.

Men read and admire the gospel of Christ  
With its love so unfailing and true,  
But what do they say and what do they think  
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References: 1. Kakavas, J. C.; Roberts, H. D. B.; de Courcy, S. J. and Ewing, D. L.: *J. Am. Vet. M. Ass.* 119:203 (Sept.) 1951. 2. Kakavas, J. C.: *Antibiotics Annual 1954-1955*, New York, Medical Encyclopedia, Inc., 1955, p. 323. 3. Mires, M. H. and Chadwick, R. H.: *Vet. News* 10:3 (Jan.-Feb.) 1947. 4. Mires, M. H.: *J. Am. Vet. M. Ass.* 117:49 (July) 1950. 5. Mires, M. H.: *Vet. News* 14:9 (May-June) 1951. 6. Roberts, H. D. B.; Kakavas, J. C. and Biddle, E. S.: *N. Amer. Vet.* 34:247 (April) 1953.

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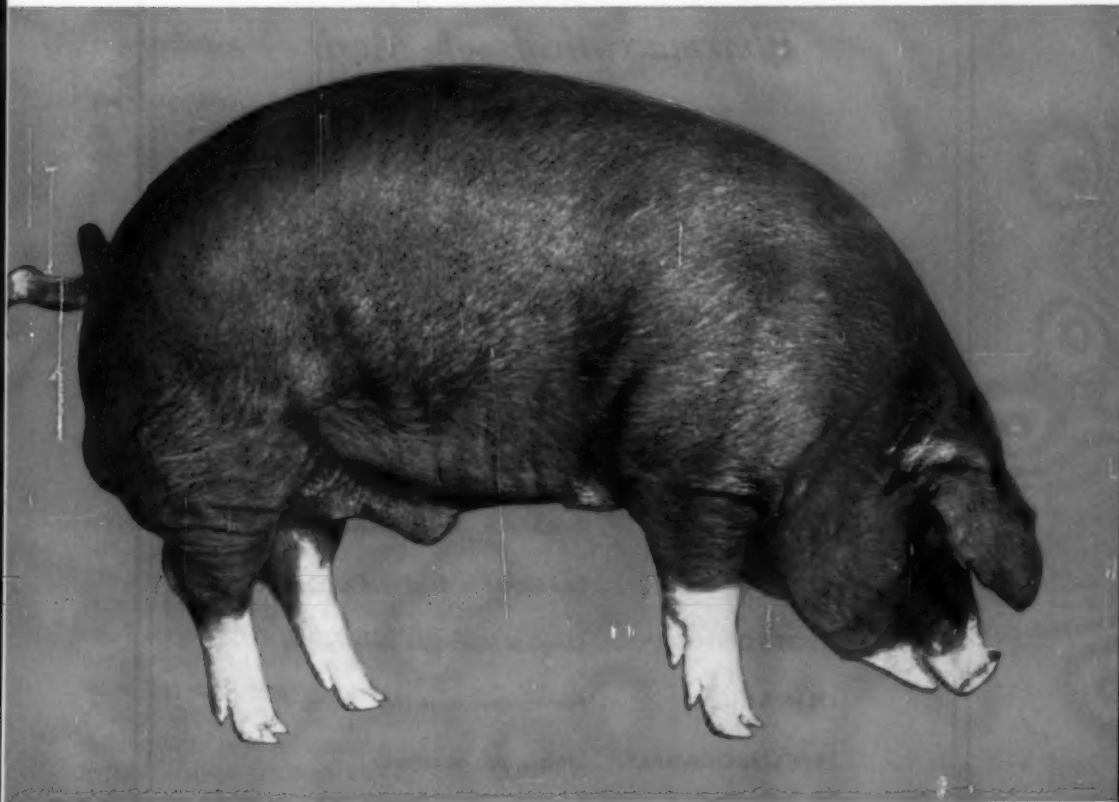
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## An Infectious Ulcerative Stomatitis of Cattle

W. R. PRITCHARD, D.V.M., Ph.D., J.D.; R. M. CLAFLIN, D.V.M., Ph.D.;  
D. P. GUSTAFSON, D.V.M., Ph.D.; M. RISTIC, Dipl. Vet., D.V.M., M.S.

Lafayette, Indiana, and Gainesville, Florida

A DISEASE characterized by erosions and ulcerations of the oral mucosa has been encountered in several herds of cattle in Indiana. One herd of 50 Hereford steers, 10 months old, that had been imported from New Mexico two months previously, was studied intensively. This report covers observations made on that herd and on experimental cases produced in the laboratory.

This disease, called infectious bovine ulcerative stomatitis, resembled other cattle diseases in certain respects. The gross pathological changes resembled those described as ulcerative stomatitis of calves,<sup>6</sup> but none of the other clinical signs described in that condition were observed. The erosions and ulcerations of the oral mucosa and the tongue were similar to the oral lesions that occur in virus diarrhea<sup>2</sup> and mucosal disease<sup>17</sup> of cattle. Some of the lesions also resembled the oral lesions observed in advanced cases of vesicular stomatitis.<sup>3</sup> Similarities between this disease and stomatitides reported from other parts of the world<sup>10,12,13,15</sup> were also observed.

### CLINICAL DATA

The only clinical signs observed were erosions and ulcers in and around the mouth, anorexia, and marked loss of body weight.

From the Department of Veterinary Science, University of Florida, Gainesville (Pritchard and Ristic); and the Department of Veterinary Science, Purdue University, Lafayette, Ind. (Clafin and Gustafson).

Indiana Agricultural Experiment Station journal paper No. 1183.

This study was supported in part by research grants from the Lederle Laboratories Division of the American Cyanamid Co., Pearl River, N. Y., and the Animal Disease and Parasite Research Branch, Agricultural Research Service, U.S.D.A.

The lesions began as small, somewhat irregular but roughly circular, reddened, pea-sized, superficial erosions. They gradually became larger and deeper until ulcers 1 inch or more in diameter and  $\frac{3}{8}$  inch deep were formed. They were present on the dorsal and ventral surfaces of the tongue (fig. 1), lips, buccal mucosa, palate,



Fig. 1—Tongues from 2 cows with naturally occurring infectious ulcerative stomatitis. Notice the deep ulcers. These ulcers had been present for six weeks and were nearly healed.

muzzle, nostrils, anterior turbinates, and the skin surrounding the mouth. Affected animals often attempted to eat, but coarse

The authors thank Dr. C. M. Parrett, practitioner, Milford, Ind., for assistance in the clinical phases of this study; Dr. M. P. Jaggi, University of Florida, for taking the electron photomicrographs; and Dr. G. M. Neher, Purdue University, for taking the photographs.

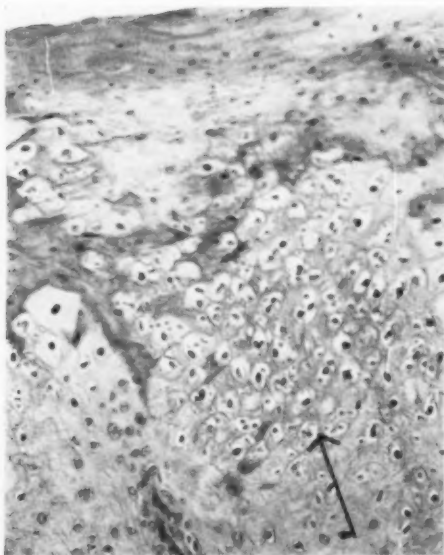


Fig. 2—Section through an oral lesion showing ballooning of the stratum spinosum cells (arrow) in a cow with experimental infectious ulcerative stomatitis eight days after inoculation.  $\times 185$ .

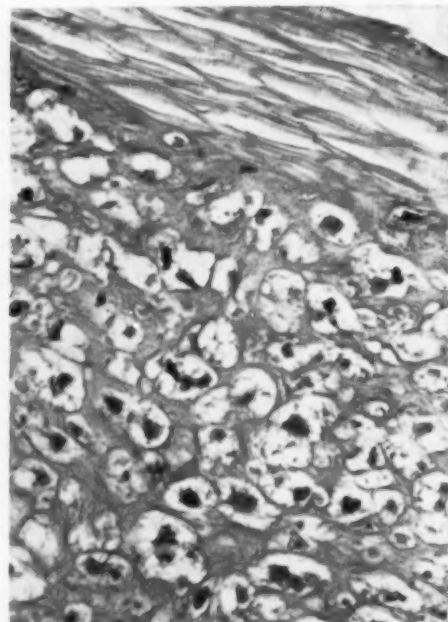


Fig. 3—The ballooning shown in figure 2 appeared to be caused by vacuolation of the cytoplasm accompanied by pyknosis and karyorrhexis of the nuclei.  $\times 440$ .

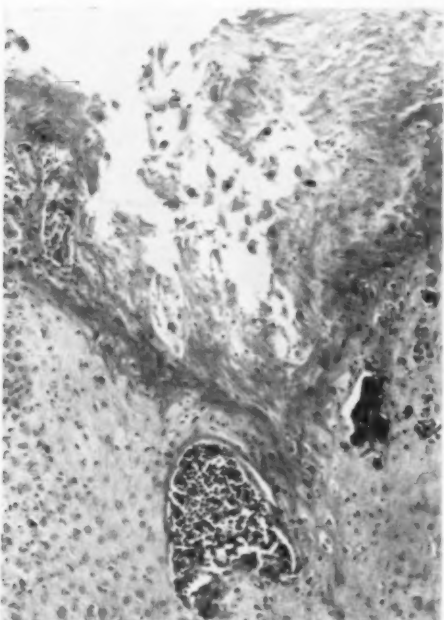


Fig. 4—Section through an oral lesion in a cow showing sloughing which occurred as a result of undercutting of the stratum granulosum and corneum by the vesicles.  $\times 100$ .

hay and concentrates apparently irritated the lesions causing the animals to protrude their tongues, drop the feed, stand with their mouths wide open, shake their heads, and in other ways exhibit soreness of the mouth.

Neither body temperature nor hematological changes were detected. The morbidity was nearly 100 per cent but no animals died. The course of the disease was two to three weeks for individuals and about six weeks for the herd.

#### PATHOLOGY

Two naturally affected and 4 experimental cattle were necropsied. No gross lesions were found except the erosions and ulcers in and around the mouth.

Histological changes were confined to the epidermis and adjacent parts of the corium. The earliest recognizable lesions consisted of areas of ballooning degeneration of the stratum spinosum (fig. 2) which appeared to result from vacuolation of the cytoplasm, accompanied by pyknosis and karyorrhexis of the nuclei (fig. 3). Apparently the ballooning was responsible for



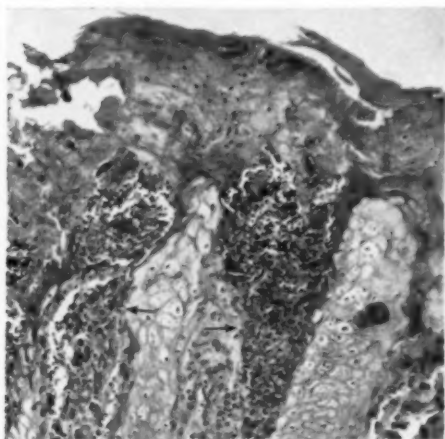


Fig. 5—Section through an oral lesion of a cow showing accumulations of inflammatory cells (arrows).  
x 125.

some of the small, grossly-visible raised areas. Later, coalescence of the ballooned cells resulted in the formation of vesicles. This appeared to accomplish the undercutting of the stratum granulosum and stratum corneum until sloughing occurred (fig. 4). At this point in the development of the lesions, secondary bacterial invasion probably occurred, as evidenced by accumulations of inflammatory cells (fig. 5), e.g., neutrophils, lymphocytes, and eosinophils. The next stage appeared to be the develop-



Fig. 6—Section of the oral mucosa of a cow showing a necrotic ulcer extending into the corium. x 90.

ment of a necrotic ulcer extending through the corium (fig. 6). Frequently, the craters of the ulcers were filled with necrotic tissue debris and inflammatory cells. Inflammatory changes were rarely seen in the corium except in the immediate vicinity of

Fig. 7—Section through an oral lesion of a cow showing granulation tissue (arrow) at the junction of the ulcer and the normal corium in a reparative stage.  
x 55.





Fig. 8—A cow with experimental infectious ulcerative stomatitis eight days after inoculation. Notice the irregular circular superficial erosions (arrow) along the line of inoculation and on the muzzle.

an ulcer. Healing began with the development of granulation tissue at the border of the ulcer (fig. 7), then proceeded fairly rapidly, leaving little or no visible scar tissue.

Histological examination of other tissues revealed a mild pericholangitis in the liver consisting of an accumulation of round cells, and a few casts in the medulla of the kidney. Other tissues examined were remarkably free of lesions. No inclusion bodies were observed.

No fungi were seen in sections stained with periodic acid-Schiff stain. No bacteria of significance were isolated from the lesions.

#### ETIOLOGY

Infectious ulcerative stomatitis was reproduced experimentally (fig. 8, 9) in susceptible calves and adult cows by exposing scarified areas of the muzzle or oral mucosa to scrapings from early lesions of naturally occurring cases. The experimental lesions were identical to those in naturally occurring cases. The agent was passed serially from calf to calf in this manner.

Calves inoculated intramuscularly developed slight oral lesions, whether or not the mouth was scarified at the time of inoculation. The disease also spread by contact but the lesions were not pronounced, presumably because the mucosa had not been scarified. No other clinical signs and hematological changes were detected in any of the experimentally infected animals.



Fig. 9—A cow with experimental infectious ulcerative stomatitis of two weeks' duration. The margin of the upper lip and the muzzle had been scarified and inoculated. Notice the long deep ulcer (arrows) of the mucosa of the upper lip and the thickening and necrosis of the muzzle.

Selas 02 filtrates of saline suspensions of ground scrapings were infective. The agent remained viable for at least nine months at  $-40^{\circ}\text{C}$ . Repeated freezing and thawing destroyed its infectivity. The ability of the agent to produce characteristic lesions was not altered by incubation for two hours at  $37^{\circ}\text{C}$ . in final concentrations of 10,000 units of penicillin and 10 mg. per milliliter of dihydrostreptomycin.

The agent was purified by the following procedure. Early experimental muzzle lesions were scraped to remove epithelial cells. Care was taken to obtain scrapings that were relatively free of blood. The scrapings were suspended in buffered saline, ground with fine sand in a mortar, and frozen at  $-40^{\circ}\text{C}$ . The suspension was thawed and centrifuged at 10,000 g. for 30 minutes. The supernate was filtered through a Selas 02 candle. The filtrate was purified by the method of Gessler<sup>8</sup> and Manson,<sup>9</sup> using a total of four fluorocarbon treatments. When such suspensions were diluted and examined with the electron microscope, the agent was detected in a remarkably pure state. Particles were nearly spherical and between 125 and 150  $\text{m}\mu$  in diameter (fig. 10).

Animals that had recovered from experimental infections were resistant to re-exposure by scarification. Calves that had recovered from and were immune to virus diarrhea were susceptible to ulcerative stomatitis.

The horse, pig, sheep, guinea pig (footpad), and mouse did not develop disease when exposed



to the virulent agent. Some success was obtained in the propagation of this agent in cultures of bovine kidney, human liver (Chang), and intestine (Henle) cells. Cytopathogenic effects were observed at 24 hours which progressed to obliteration of nearly all cells in five days. With serial passage, the time for the appearance of changes lengthened and the severity declined. The effect was absent in the fifth passage. Material which had been passed through Sela 02 filters or purified with fluorocarbon, or both, retained its ability to produce these effects. In the one trial in which convalescent serum was used, the effects were reduced markedly but not eliminated.

#### DISCUSSION

The observations reported here would seem to establish infectious bovine ulcerative stomatitis as an infectious disease caused by a relatively large virus.

Infectious ulcerative stomatitis appears to be similar in some respects to an ulcerative stomatitis of calves which was reported<sup>6</sup> to be characterized by temperatures up to 105 F., diarrhea, leukopenia, and recovery in four to seven days. No febrile signs, leukopenia, or diarrhea were observed in the animals in which infectious ulcerative stomatitis occurred naturally or in 24 experimental animals, and the course of the disease was two to three weeks. The relationship of these two conditions must be determined by specific serological procedures.

Clinically, the oral erosions and ulcers were identical to those that occur in virus diarrhea and mucosal disease. The fever, leukopenia, nasal discharge, and diarrhea, and the erosions and ulcerations throughout the alimentary canal which are characteristic of virus diarrhea and mucosal disease, however, were not present. The vacuolation of the cytoplasm of the cells of the stratum spinosum was similar to the histological changes that occur in virus diarrhea<sup>2</sup> and mucosal disease.<sup>17</sup> Virus diarrhea-immune calves were susceptible to experimental infectious ulcerative stomatitis. Although complete cross-protection tests with mucosal disease, virus diarrhea, and infectious ulcerative stomatitis have not been conducted, clinically and pathologically these diseases appear to be separate entities.

The oral lesions of infectious ulcerative stomatitis resembled, to some extent, the advanced lesions of vesicular stomatitis, but gross vesicles or lesions on the feet or udders were never observed in infectious

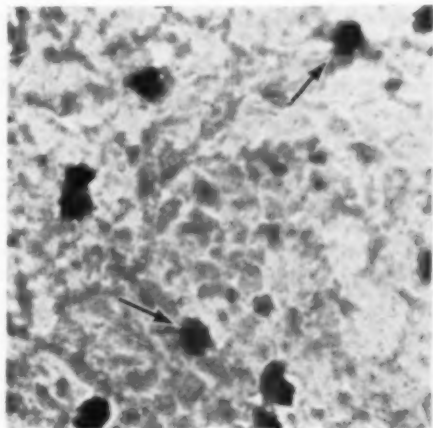


Fig. 10—Electron photomicrograph of the infectious ulcerative stomatitis virus from a cow.  $\times 33,000$ . The surface of the particles (arrows) appears to be rough in this photograph. Specimens that were examined before dilution in saline and before freezing had smooth surfaces.

ulcerative stomatitis. Vesicle formation begins intercellularly in vesicular stomatitis<sup>3</sup> rather than in the cytoplasm of the cells of the stratum spinosum, as it does in infectious ulcerative stomatitis. The horse, pig, sheep, and guinea pig are all susceptible to vesicular stomatitis, but none of these animals could be infected with infectious ulcerative stomatitis. Infectious ulcerative stomatitis virus particles are about twice the size of those in vesicular stomatitis. In serum neutralization tests for vesicular stomatitis, in embryonating chicken eggs, infectious ulcerative stomatitis convalescent serum did not neutralize vesicular stomatitis virus.\* These findings would seem to indicate that vesicular stomatitis and infectious ulcerative stomatitis are separate diseases.

Infectious ulcerative stomatitis did not closely resemble so-called "mycotic stomatitis,"<sup>19</sup> which appears to be the same as muzzle disease.<sup>8</sup> Mycotic stomatitis occurs seasonably in the late summer and fall and can not be transmitted. It is characterized by necrotic ulcerations of the muzzle, oral cavity and, in severe cases, the entire alimentary canal. One of the most characteristic clinical signs of this disease is lameness, which appears to

\*Tests were performed by Dr. R. P. Hanson, Department of Veterinary Science, University of Wisconsin, Madison.

be caused by laminitis. Erosions of the skin of the udder and perineal region commonly occur, and a fetid diarrhea is present in severe cases. The only clinical signs in infectious ulcerative stomatitis were ulcers in and around the mouth, anorexia, and loss of weight.

Infectious ulcerative stomatitis resembled a number of stomatitides that have been reported from various parts of the world. It seems to be somewhat similar to papulous stomatitis<sup>15</sup> reported from Germany, Armagh disease<sup>12</sup> reported from Ireland, erosive stomatitis from South Africa,<sup>10</sup> and parotido-stomatitis<sup>13</sup> reported from India. The relationship between infectious ulcerative stomatitis and these conditions must be determined by specific serological means.

The ballooning degeneration which occurs in infectious ulcerative stomatitis appears to be similar to the histological changes described in other diseases. In addition to virus diarrhea and mucosal disease which have already been mentioned, ballooning degeneration has also been described in proliferative stomatitis,<sup>14</sup> papulous stomatitis,<sup>15</sup> pox,<sup>1</sup> and is often observed in virus diseases.<sup>18</sup>

The pericholangitis seen in the liver and hyaline-like casts in the kidneys are common findings in cattle in Indiana.

Recent unpublished reports indicate that a disease that is clinically similar to infectious ulcerative stomatitis has been recognized in New York<sup>16</sup> and Pennsylvania.<sup>4</sup>

#### SUMMARY

1) A disease of cattle characterized by erosions and ulcerations in and around the mouth, anorexia, and loss of body weight is described.

2) This disease, called infectious bovine ulcerative stomatitis, was transmitted and found to be caused by a virus.

3) Electron photomicrographic studies revealed that the virus was nearly spherical in shape and from 125 to 150 m $\mu$  in diameter.

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**Antibiotics in Milk.**—Milk consumption, in a city in New York, dropped drastically when a local paper reported that milk supplies were contaminated with penicillin which might cause an allergic reaction. The consumption trend was reversed when a report based on research at Cornell University reassured customers that the antibiotic content of their milk had not changed materially in five years and presented no immediate danger.—*Milk and Food Tech.* (Jan., 1958): 22.

# Observations on the Therapeutic Activity of Cuprous Iodide

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THE USE of iodine as iodides in the therapy of various nonspecific or chronic ailments is well established in veterinary medicine. In particular, the use of iodides to combat actinomycosis and other mycotic infections, and their empirical use as an expectorant, "tonic," and "alterative" are accepted practices.

Recently, cuprous iodide was introduced as a new and palatable source of iodine for oral iodide therapy in cattle and pigs. During early attempts to establish proper dosage levels for this compound in various species, certain observations were made which offered a possible explanation of the mechanism by which cuprous iodide is effective in conditions which are susceptible to this form of therapy.

## CLINICAL OBSERVATION

In an attempt to demonstrate vermicide activity in cuprous iodide, 250 mg. per day was given orally to a 15-kg. Collie dog which was known to be harboring ascarids and *Uncinaria*. After five days of treatment, no worms had been passed and the egg count was not significantly decreased. However, a general erythematous condition, which existed at the start of the experiment, cleared up two days after medication was begun. Another dog in the same pen, with similar lesions, was given ACTH (20 units, subcutaneously) as routine treatment. In this second animal, the lesions responded well to the hormone but reappeared on cessation of the drug, whereas in the animal given cuprous iodide the lesions disappeared.

This finding suggested the possibility that cuprous iodide possessed anti-inflammatory activity that might explain the mechanism by which it is active in clinical practice.

## MATERIALS AND METHODS

Thirty rats,\* weighing approximately 150 Gm., were allotted to three groups of 10 each. A granuloma pouch was developed under the clipped skin of the dorsum of each rat as described by Selye,<sup>1</sup>

using 25 cc. of air and 1 cc. of 1 per cent croton oil in corn oil. In this technique, air is injected into the subcutaneous connective tissue through a 2-inch, 27-gauge needle and the irritant solution is placed in the lumen of the pouch through the same needle.

All experimental animals were given food and water ad libitum throughout the test period. All were given either cuprous iodide (250 mg. per kilogram of body wt. per day) orally, suspended in 2 per cent acacia; a daily oral injection of distilled water (0.02 cc./Gm.); or daily subcutaneous injections of cortisone acetate (1 mg. per rat per day). Because of the difficulty of holding the animals for oral injection without danger of damage to the pouch, each rat in all three series was lightly anesthetized with ether before each treatment.

After twelve days of continuous treatment, the animals were killed with ether and the pouches dissected free of adhering tissue. Each pouch was opened with a scissors and the fluid was collected in a graduated cylinder. The tissue comprising the pouch proper was preserved in 4 per cent formaldehyde for 24 hours, after which excess water was removed by rolling in absorbent paper, and the tissue was weighed on a torsion balance.

Standard errors were determined and the significance of difference between groups was calculated by the "t" test.

## RESULTS AND DISCUSSION

The average fluid volume and the average weight of the tissue of the pouches in each group, with the standard errors, is shown (table 1).

It has been shown that reduction of the croton oil granuloma pouch represents true anti-inflammatory activity. Furthermore, extensive trials with compounds not showing anti-inflammatory activity, and with many inorganic salts, have failed to disclose a nonspecific reduction in the volume or weight of the pouch.<sup>2</sup>

The average volume of the fluid in the pouches of rats treated with cuprous iodide was reduced to less than 14 per cent of the fluid in the pouches of the controls and to 23 per cent of the volume of the pouches of the cortisone-treated animals.

The inordinately large standard error of the fluid volumes in the control group was caused by one pouch which contained no fluid. Otherwise the values ranged from 11.5 to 18.5 cc.

The weight of granuloma tissue in the

From the department of Experimental Medicine, Jensen-Salsbery Laboratories, Inc., Kansas City, Mo.

\*Obtained from National Animal Co., Creve Coeur, Mo.

TABLE 1—Effect of Various Treatments on Fluid Volume and Tissue Weight of Granuloma Pouches of Rats

Group	Treatment	No. of animals	Fluid volume <sup>1</sup>	Tissue <sup>2</sup> weight
1	Distilled H <sub>2</sub> O oral daily injection	10	12.3 ± 5.08 cc.	2.1 ± 0.22 Gm.
2	CuI <sub>2</sub> 250 mg./kg. oral daily administration	7 <sup>3</sup>	1.7 ± 0.28 cc. <sup>4</sup>	.83 ± 0.084 Gm. <sup>4</sup>
3	Cortisone acetate 1.0 mg./rat/day subcutaneous injection	10	7.4 ± 0.62 cc.	1.68 ± 0.14 Gm.

<sup>1</sup>Mean ± standard error—S.E. =  $\sqrt{\frac{\sum(x^2 - \bar{x})^2}{(n-1)n}}$ ; <sup>2</sup>3 of 10 animals died of anesthetic accidents; <sup>3</sup>significantly lower than control value ( $p < 0.01$ ) and cortisone treated value ( $p < 0.01$ ); <sup>4</sup>significantly lower than control value ( $p < 0.01$ ) and cortisone value ( $p < 0.01$ ).

animals treated with cuprous iodide was reduced to 40 per cent of that of the controls and to 50 per cent in the cortisone-treated animals.

The results of this preliminary work indicate that cuprous iodide presents a unique source of anti-inflammatory activity. It can be postulated that, if this activity lies in the iodide ion, it offers an understanding for the undoubted clinical efficacy of iodides for which there has been no previous explanation.

Work is being continued to determine the source of this anti-inflammatory activity and to study the mechanism by which it is effective.

#### SUMMARY

Evidence is presented to show that cuprous iodide, administered orally, demonstrates anti-inflammatory activity in the granuloma pouch.

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#### Iodine Passage via the Placenta

It has been shown in several species that, during late pregnancy, the thyroid of the fetus will fix iodine injected into the dam. When radioiodine (NaI) was injected into the muscles of rats, toward the end of gestation, the radioactivity of the fetal plasma was greater than that of the maternal plasma in less than one hour; and in ten hours, it was 2.5 times

as great. The radioactivity of the placenta was also greater than that of the maternal plasma. It is suggested that the placenta acts to concentrate iodine for the fetal organism.—*Nutr. Rev.* (Feb., 1958): 52.

[This may explain the long-recognized need for precaution in treating pregnant animals with iodine compounds. During the 1940's, hundreds of cattle with actinobacillosis (actinomycosis was rare in northwestern Iowa) were treated with a single intravenous dose of sodium iodide (60 to 90 gr./lb.; maximum 2.0 to 2.5 oz.) in solution, with rarely any signs of iodine poisoning. For pregnant animals, the dosage was reduced about one half, yet 1 heifer aborted, presumably because of the iodine. —W.A.A.]

*Effects of Progesterone on Molting and Egg Laying of Chickens.*—The molt which resulted from injection of progesterone increased in degree as the normal molting season approached. Therefore, progesterone would be beneficial only in stimulating quick and uniform molt during or just prior to the normal molt period. Egg production ceased immediately following the injections and lasted one to 34 days, the majority of eggs being held five days or less. These eggs showed added pigment. —*Poult. Sci.* (Nov., 1957): 1186.

*Erysipelas in Ducks and Pheasants.*—The entire flock of 120 ducklings and 4 in a small flock of pheasants, in France, died from acute erysipelas septicemia. The two strains of organisms were identical with strains of porcine origin.—*Vet. Bull.* (Jan., 1958): Item 17.

## An Anomaly of the Reproductive System of the Pig

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It has been known for sometime that swine having female external characteristics may bear rudimentary male sexual structures internally. Warnick *et al.*<sup>1</sup> observed tubal abnormalities and cystic follicles in fertile and infertile sows. Wiggins *et al.*<sup>2</sup> observed that in a group of 1,925 open, nonsuckled sows examined post-mortem at a slaughterhouse in Madison, Wis., 7.6 per cent of the animals possessed rudimentary male reproductive structures either unilaterally or bilaterally.

On Aug. 20, 1957, a 3-month-old Duroc-Jersey gilt, with external characteristics of a female, was received by the Depart-

ment that the gonads were testicular in appearance and there were additional reproductive structures adjacent to each gonad. Incomplete male reproductive organs were present on each side. No previous animals of this type had been reported from this herd.

The uterus and uterine horns were distended with fluid. The fallopian tubes possessed neither fimbriae nor abdominal ostia. The anterior tip of each fallopian tube was adhered to the gonad by a strong fascia-like connective tissue (fig. 1A). A second tubular structure was attached, by connective tissue, to the anterior end of the fallopian tube and extended about 10 cm. posteriorly, where it changed abruptly into a structure resembling an epididymis. The thickly-capsuled gonad had no tubular connection to either the tube of the epididymis or the fallopian tube (fig. 1B).

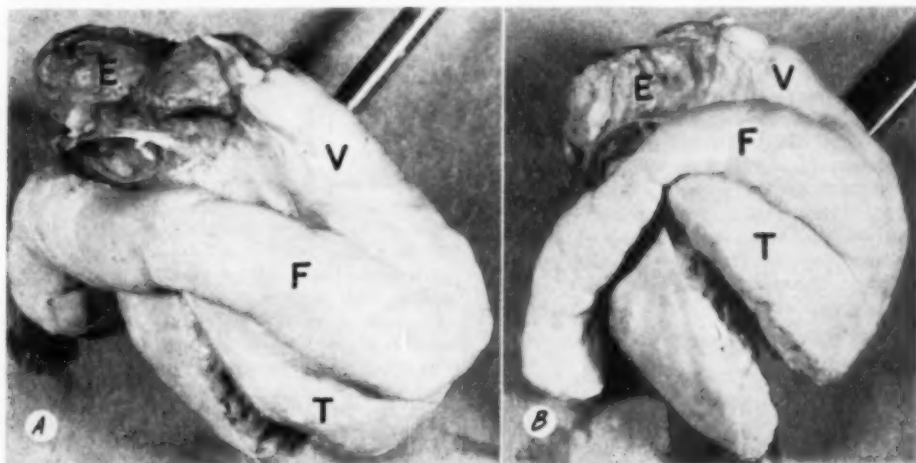


Fig. 1—Ventral view (A) and anterior view (B) of right gonad (incised) with fallopian tube and epididymis—(E) epididymis; (V) duct of epididymis; (T) gonad (testis); (F) fallopian tube.

ment of Veterinary Science for post-mortem examination to determine the cause of death. It had been dead approximately eight hours when the examination was made.

The animal, which had been designated a breeding female, showed characteristics of a female externally and internally, ex-

Histological examination was made by means of paraffin sections. Both the proximal and distal ends of the fallopian tube contained convoluted tubules resembling immature testicular tissue. The tube going to the structure identified as an epididymis contained tubules of much larger diameter than those in the fallopian tube. The sections of the structure termed the epididymis showed that it had been properly identified. The gonad contained convoluted

From the Department of Veterinary Science, North Dakota Agricultural College, Fargo.

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tubules and interstitial tissue like that of a testis.

#### SUMMARY

The testicular structure of the gonad and the complex tubular nature of the fallopian tube in the gilt studied suggest a case of sexual bimorphism not previously reported.<sup>1,2</sup>

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#### Report on Zoonoses

The following items are from the reports, *Morbidity and Mortality*, issued weekly by the U.S. Department of Health, Education, and Welfare.

*Coccidioidomycosis*.—In Arizona, 588 cases of human coccidioidomycosis were reported in 1957, the largest number ever reported in one year.—*Jan. 24, 1958*.

*Trichinosis*.—In Hawaii, six cases of trichinosis were reported, three of which were fatal. The patients became ill one to 14 days after eating raw or undercooked pork from a pig raised on the Island. The eight other persons, who cooked their portion of the same pig, remained healthy. Muscle biopsies from five of the patients showed numerous *Trichinella* larvae and one showed calcified cysts from a former infection.—*Jan. 31, 1958*.

*Tularemia*.—In Pennsylvania, a man and a boy who had gone hunting together, and were exposed to wild rabbits, developed signs and symptoms of tularemia five days later. Both were treated with streptomycin and recovered.—*Feb. 7, 1958*.

Blood samples were collected from 73 volunteers at the Pennsylvania State Veterinary Medical Association convention in October, 1957. There were ten reactions to brucellosis (1:40 to 1:320) and six to Q fever (1:8 to 1:32). All tests for leptospirosis and psittacosis were negative.—*Pennsylvania Dept. of Health, Feb. 11, 1958*.

*Minnesota Requires Ear Tags on Imported Swine*.—A regulation adopted by

the Minnesota Livestock Sanitary Board requires that all swine imported or moved from public stockyards, except when going to slaughter, bear a numbered tag and that the tag numbers be listed on the health certificates. The health certificate, issued by a veterinarian, must indicate that there are no signs of disease and that the swine have been immunized against cholera. For breeding swine, the certificate must also state that the animals have been tested for brucellosis or are from a certified brucellosis-free herd. Wisconsin officials are considering similar regulations.—*Nat. Hog Farmer (Feb., 1958): 16*.

*A Cat-and-Mouse Test for Tranquilizers*.—By "wiring" a mouse, with a clip on the tail, and applying the current whenever the cat attempts to pick up the mouse, the cat is taught by an average of three shocks, to ignore the mouse. When certain tranquilizing drugs are then given to these cats, they will drop the mouse when shocked but will pick it up repeatedly regardless of the shocks. The strength of the tranquilizer is indicated by how quickly the cats forget what they have learned.—*Sci. News Letter (Feb. 1, 1958): 73*.

*Ornithosis as a Human Disease*.—That ornithosis is a rare, and also a serious disease in man, is challenged in Denmark. Of 16 young men with respiratory disease, giving the general impression of a severe cold in the head, all gave positive serological reaction to ornithosis. In only one case was there a possibility of infection from birds.—*J.A.M.A. (Jan. 11, 1958): 173*.

*Antibody Transfer by the Bovine Udder*.—When labeled gamma globulin was injected intravenously in a cow five months pregnant, it was not concentrated by the mammary gland, whereas, in late pregnancy in the heifer, the gamma globulin was concentrated to a level two to three times that in the heifer's plasma. This secretion of gamma globulin into the precolostrum ceased abruptly at parturition.—*R. J. Garner and W. Crawley in J. Comp. Path. & Therap. (Jan., 1958): 112*.

*Antibody Production by Bovine Fetuses*.—It is said that calves are born without gamma globulin and that fetuses are unable to produce antibodies. However, Bru-



cella serum agglutinins were found in newborn *Brucella*-infected calves and in aborted fetuses. When *Leptospira* were injected directly into the fetuses of 2 leptospirosis-immune cows, the antibody titers of the calves' precolostral serums greatly exceeded that of the dams. It was concluded that the calves developed immunologically active *gamma* globulin in the uterus in response to the fetal infection.—*Nature* (Nov. 30, 1957): 1210.

**Antibody Production by Lymphocytes.**—During a period of antibody production, the cytological changes of lymphocytes in lymphatic tissue, release of *gamma* globulin from lymphoid cells, and the finding of antibodies from tissue cultures of pure lymphocytes failed to reveal whether lymphocytes are producers or only carriers of antibodies.

After various experiments, it was concluded that lymphocytes can form antibodies, the metabolic change being associated with morphological transformation of some of the less mature lymphocytes into macrophages and plasma-cell types. However, these may not be responsible for all of the antibodies formed.—*Nature* (Jan. 11, 1958): 122.

**The Ewe as a Mother.**—Before lambing, the ewe's udder should be clipped to allow the lamb to find the teats readily. When she becomes restless, she should be placed in a small pen in a lambing shed to protect the young from being trampled or becoming separated. If it is extremely cold, a blanket should be thrown over the pen until the young are dry and on their feet. For the next day or two, ewes and their lambs should be kept in small groups.

For several days, the ewe knows her lamb only by its odor, but in a few days she can recognize it by its voice. With too many ewes and lambs in one pen, she may become confused and not accept her young. During the first hour, she licks her young and anxiously superintends the first attempts to stand and nurse. This is the most critical hour of a lamb's life.—*Breeder's Gaz.* (Feb., 1958): 12.

**Transfer of Ticks from Ewes to Lambs.**—Transfer of the sheep tick, *Melophagus ovinus*, from ewes to their lambs explains much of the decline in tick population on

ewes during the spring and summer. Only the newly emerged ticks are transferred, the older ones gradually die on the ewes as a result of a specific tick infection.—*Nature* (Jan. 4, 1958): 56.

**Insecticidal Resistance in Lice.**—Certain strains of the long-nosed cattle louse may be developing resistance to some chlorinated hydrocarbon insecticides, according to the U. S. Department of Agriculture. When two normal treatments of lindane in an emulsion spray failed to eradicate lice from calves, and it was learned that they had twice previously been treated with heavier doses of lindane, an experiment was conducted at Beltsville which showed that a spray emulsion of lindane was less effective than expected.

Similar experimental results were obtained with DDT, which is no longer recommended for use as a spray on beef cattle because residues appear in the fat of treated animals. However, chlorinated hydrocarbon insecticides are still recommended for general use since there is no indication that the resistance among cattle lice is widespread.

Malathion, a phosphate insecticide recently recommended for louse control on beef cattle only, was effective for 60 days as a 0.5 per cent spray.—*U.S.D.A.* (Feb. 14, 1958).

**Methoxychlor Dust Recommended for Hornfly Control.**—While methoxychlor sprays should not be used on dairy cows, the dust treatment is recommended by the U.S.D.A. for control of hornflies on dairy cattle. One tablespoonful of 50 per cent methoxychlor powder should be sprinkled over the back of each animal and rubbed lightly into the hair. This will provide control of hornflies for about three weeks. The spray can be applied to the interior of dairy barns as a residual treatment for stable flies and houseflies.—*U.S.D.A.* (Jan. 24, 1958).

**Ox Warbles (Grubs) in Horses.**—*Hypoderma bovis* infection was observed in 8 of 12 young horses in poor condition that were grazing with cattle, in Russia. Older, well-fed horses, were unaffected. Although the larvae were smaller than normal, they emerged spontaneously.—*Vet. Bull.* (Jan., 1958): Item 150.

## A Practical Large Animal Splint

WILLIAM H. BECKENHAUER, D.V.M., M.S.

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LARGE ANIMALS with long bone fractures present problems peculiar to their size, temperament, and economic value. Various methods have been described for repair of long bone fractures in large animals, such as suspending the animal in a sling,<sup>15-17,25</sup> casting of the affected limb,<sup>5,9,11,17,21</sup> external splintage,<sup>1,2,4,7,13,18,20,24</sup> internal fixation,<sup>3,6,14,19,23</sup> and combinations of these methods.

Cattle do not respond satisfactorily to sling support. Most slings have incorporated in their construction a neck band which tends to compress the esophagus, preventing eructation and causing tympanitis. Frequently the temperament of the patient is such that it makes no effort to support itself on the functionally sound limbs, but depends entirely on the sling for support. This contributes to the rapid development of pressure necrosis at areas of sling contact and deterioration of the patient's general health.

To be effective, casts must immobilize the bone fragments, and this is possible only if the soft tissues between cast and bone are of limited thickness. Large muscle masses located over the upper humerus and tibia allow excessive movement. It is generally agreed that a cast must immobilize articulations at either end of the fractured bone. It is difficult to extend a cast above the stifle or elbow joints in large animals. The usefulness of casts is, therefore, limited to fractures below the carpus and tarsus.

In the writer's experience, the use of Kirschner apparatus in tibial fractures in bulls was unsatisfactory. The patients would not attempt to stand or ambulate, and the development of severe osteomyelitis was routine.

There is a paucity of information on the use of internal fixation devices in large animals. Several satisfactorily treated cases have been reported.<sup>2,14,19,23</sup>

It is the purpose of this paper to describe a practical and uniquely modified\*

Thomas splint which has proved useful. The splint has incorporated in its construction an extension feature, which makes the use of block and tackle or calf-puller traction on the fractured limb unnecessary. It is a substantial splint and, for an exceptionally heavy animal, can be readily strengthened by welding angle irons over the splint legs. Most animals are able to stand, lie down, and ambulate soon after application of the splint.

### DESCRIPTION

The modified Thomas splint consists of five parts: the ring and legs (fig. 1A) made of  $\frac{3}{4}$ -inch inside diameter pipe; two threaded extension rods fitted with a large nut (fig. 1C); a foot plate made of  $\frac{1}{4}$ -inch steel (fig. 1D); and a heavy strap iron bar (fig. 1E). For the hindlimb of a large bull, the ring should be 24 inches inside diameter—for smaller animals or forelegs, 18 or 12 inches. The legs of the splint are located so they will be on the medial and lateral surfaces of the limb when the splint is in its proper position on the animal (fig. 2B). The length of the medial leg of the splint is about 18 inches and the lateral leg is as long as necessary, according to the diameter of the ring, so that the distal ends of the two legs are on the same level (fig. 1A).

The lateral leg is set at an angle of 30 degrees from the plane of the ring, and the angle of the medial leg is adjusted as is necessary to fit the space between the extension rods when bolted to the foot plate. The lateral leg is detachable from the ring by a post-and-pin joint near the ring (fig. 1B).

The extension rods for the splint are made of steel, slightly less than  $\frac{3}{4}$  inches outside diameter, about 24 inches long, threaded 20 inches, and fitted with a large nut (fig. 1C). The distal ends are flattened and drilled for attachment to the foot plate.

The foot plate is an oval steel plate,  $\frac{1}{4}$  inch thick,  $5\frac{1}{2}$  inches wide,  $6\frac{1}{2}$  inches long, drilled with multiple holes or slots, with extensions on the medial and lateral sides for attachment of the extension rods

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\*Credit is due Dr. Eli Von Tour of Alliance, Neb., for the basic design.

(fig. 1D). During the second phase of its application, the splint utilizes the foot plate and a strap iron bar 42 inches by 2½ inches by ½ inch (fig. 1E). The strap iron bar is bent into a shallow "S" curve at the hock level (fig. 2D). To prevent slipping of the plaster bandage, a number of welding rod nipples are welded to the lateral surfaces of the lateral leg and the bar.

#### APPLICATION

The portion of the ring which will contact the patient is padded (fig. 2B) with several layers of cotton and gauze, covered with adhesive tape. The patient's hoofs are marked to match the holes in the foot plate and seven holes are drilled in each of the medial and lateral hoofs. The holes are drilled from the ground surface at the junction of sole and wall, upward and outward to emerge from the abaxial surface of the hoof wall about ¾ inch from the ground surface. Short lengths of baling

wire are passed through these holes and the corresponding holes of the hoof plate.

The hoof plate is positioned snugly to the foot and held in place by twisting together the ends of each wire. Since these wires may tear out, the plate is further secured to the foot by applying several rolls of a plastic plaster-of-paris type bandage impervious to moisture.\* Next, the ring assembly is placed in position by passing the ring over the foot and proximally until it fits the upper leg snugly. The extension rods, with the nuts turned distally as far as possible, are inserted into the legs of the ring assembly and then the distal ends of the rods are bolted to the foot plate extensions.

Extension of the limb is effected by turning the extension rod nuts upward. The amount of traction applied to the limb should be limited to that which can be obtained by turning the extension rod nuts hand-tight without pliers or wrenches.

\*Melmec, product of Davis & Geck Co., Danbury, Conn.

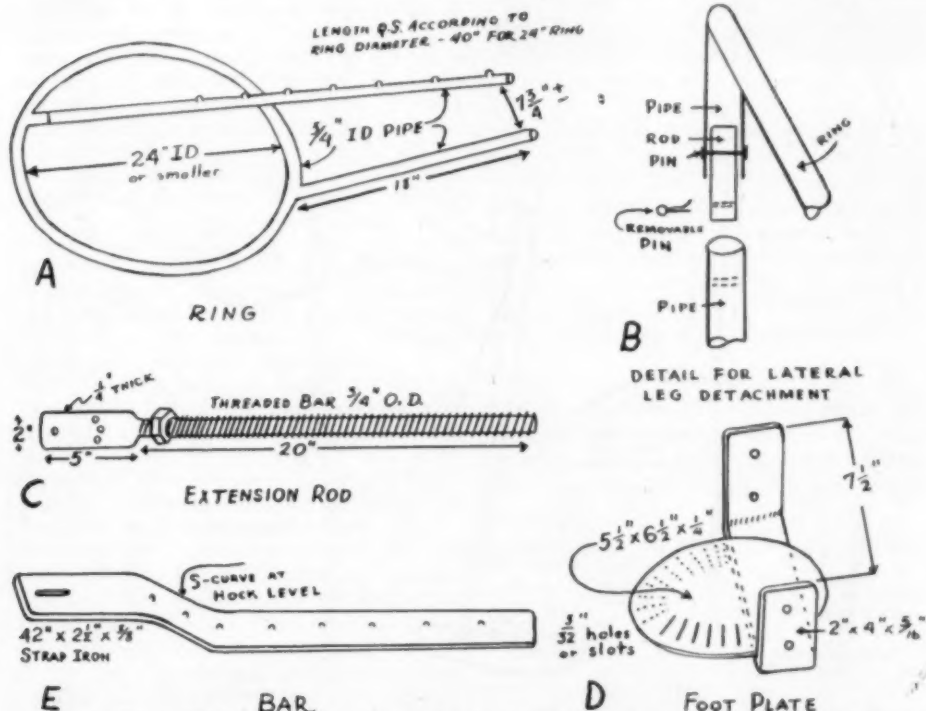


Fig. 1—The modified Thomas splint showing the ring (A), details for lateral leg detachment (B), extension rod (C), foot plate (D), and bar (E).

After the ring splint is in place and extension accomplished, it is necessary to stabilize the tibial region within the splint, because the heavy musculature of the leg is located on the lateral surface of the tibia and contraction of these muscles tends to bend the distal fragment of the tibia laterally. A long cotton rope is wrapped spirally upward around the patient's leg and the lateral leg of the splint, starting below the hock. By increasing pressure with each turn of the rope, the entire limb is drawn closely to the lateral splint leg. Then, starting at the hock level,

the rope is gradually unwound as it is replaced with plaster bandage (fig. 2B).

The ring splint can be left in place about two weeks before pressure necrosis at the fold of the flank becomes extensive. It is then removed and replaced with the bar splint. The plaster bandage encircling the limb and lateral splint leg is removed. The extension rod is unbolted from the foot plate and removed. The lateral splint leg is detached at the joint near the ring (fig. 1B) and removed. These steps leave the limb maintained in extension and supported by the medial splint leg until the

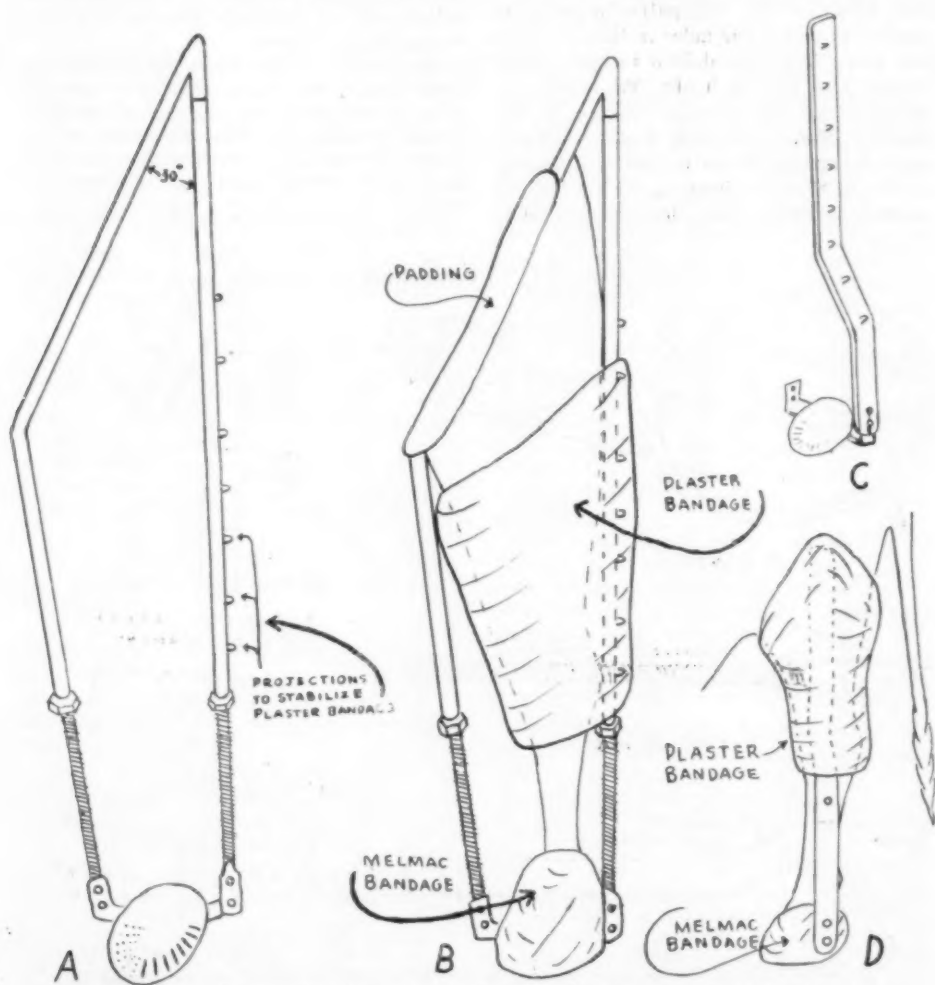


Fig. 2—The ring splint assembled (A) and on patient (B); the bar splint assembled (C), and on patient (D).

bar is in place. The bar is positioned on the lateral surface of the limb and bolted to the foot plate. The limb is again supported by a new plaster of paris bandage encircling the limb and bar splint, from the hock upward as far as possible, and the ring, medial splint leg, and extension rod are removed (fig. 2D). The bar splint is left in place for two to six weeks, depending on the patient's progress.

#### DISCUSSION AND RESULTS

The writer has observed two fatalities in cattle, attributable to the splint. In both cases, the patient became laterally recumbent with the splinted limb underneath. The splint made it impossible for the animal to return to sternal recumbency and fatal bloat resulted. When used on cattle, the patient should be examined frequently during the day and night, and any feeds which might contribute to bloat should be excluded from the diet.

Most animals learn to use the splint readily and can soon stand, lie down, and ambulate. If, at first, assistance is necessary, a hoist may be attached to the upper part of the ring and pulled upward while stimulating the animal to rise. It seems important to get cattle patients on their feet as soon as possible before a defeatist complex develops.

I have used this splint on 12 experimental and on about 18 clinical animals (fig. 3). Most of the clinical animals were young bulls,  $1\frac{1}{2}$  to  $3\frac{1}{2}$  years old, with proximal epiphyseal tibial fractures. While definite reports of results are not available from the clinical cases,<sup>†</sup> it appears that at least half of the animals recovered functionally and continued breeding.

A Hereford bull,  $1\frac{1}{2}$  years old, with a proximal epiphyseal tibial fracture, was treated by use of this splint—two weeks in the ring and five weeks in the bar. When discharged from the clinic ten weeks later, a slight lateral motion was detectable at the fracture site and lameness was evident. However, the owner reported, five months later, that the bull was sound and serviceable and that a casual observer could not detect which leg had been broken. Some other animals did not fare so well.

One bull experienced a refracture soon after discharge and was killed. Two other



Fig. 3—The ring splint in place on a bull.

bulls developed lateral angulation of the leg below the fracture and were non-serviceable. While a 50 per cent recovery rate is low, it demonstrates that euthanasia is not always necessary or advisable for fracture cases in cattle. The percentage of recoveries increased as the operator gained experience and the "bugs" in the splint were discovered and eliminated.

#### SUMMARY

A practical modified Thomas splint with incorporated extension feature for large animals, and its application and use, are described. Certain precautions are advised.

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## Bovine Insemination in 1957

The one-millionth cow for the year was inseminated by the American Breeders Service on Dec. 12, 1957, setting a new record for one bull stud, and there are 75 bull studs in America. An estimated 6.0 million cows were inseminated during the year in the United States, 0.5 million in Canada, and 1.5 million in England.

There are 1,000 technicians in the A.B. Service, 900 operating in 44 states, the others in South America, Hawaii, and Puerto Rico. Frozen semen is used by most of these and will soon be used by all

of them. By using frozen semen, deliveries are reduced to once in two weeks, no semen is wasted, and semen from outstanding sires is used after their death.

The A.B. Service was started in Chicago in 1941 when it inseminated 394 cows. During its 17 years, it has inseminated over 6.5 million cows.—*Hoard's Dairyman* (Feb. 10, 1958): 158.

## Twinning in Dairy Cattle

Of 10,885 dairy cattle births examined, at Iowa State College, 317 were twin births and, of these, 91 were both males, 75 were both females, and 151 were of mixed sex.

The incidence of twins was highest in the Brown Swiss breed (8.85%) and lowest in Jerseys (1.31%). The frequency of identical twins among like-sex pairs is estimated as 8.6 per cent. The frequency of twinning increased with the age of the dam.

The butterfat production in the lactation following birth of twins averaged 21 lb. less than in the previous lactation.—*J. Dai. Sci.* (Nov., 1957): 1430.

*Ovulation in the Raccoon.*—Captured adult female raccoons, kept isolated during the breeding season, were found to have well-developed follicles in their ovaries but no corpora lutea, indicating that ovulation is not spontaneous but is induced by copulation.

One ovary, oviduct, and the tip of the adjacent uterine horn was removed from each of 2 adult raccoons which were later bred. When examined later, each had two embryos in the normal horn and one close to the sutured extremity of the ovariectomized horn, thus proving that trans-uterine migration occurs in the raccoon as well as in the mink.—*J. Mammalogy* (Aug., 1954): 439.

*Nymphomania in Cows.*—Three of 4 cows with nymphomania recovered after the hypophysis cerebri from a calf was implanted in the abdominal muscles of each.—*Monatsh. f. Vet.-med.*, (May 1, 1957): 211.

The interval between parturition and estrus in zebu (Brahman) cattle, in Brazil, averaged 87 days.—*Vet. Bull.* (Dec., 1957): 3765.



### Infection and Antibody Response in Deer Experimentally Infected with *Anaplasma Marginale* from Bovine Carriers

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IN MUCH of the coastal and Sierra Nevada Mountain rangelands of California, deer occupy the same terrain as beef cattle and are subject to parasitism with many of the same species of ticks which are believed to be the most important vectors of anaplasmosis in these areas. The possibility that deer might be carriers of *Anaplasma marginale* has occurred to numerous observers, but there is little published work substantiating this theory. It was reported, in 1933,<sup>2</sup> that infection had been transmitted from cattle to 2 deer, which showed no signs of clinical infection, and from these deer back to 3 cows which developed the typical acute disease. In 1940,<sup>3</sup> clinical anaplasmosis developed in a susceptible cow which had been injected with blood pooled from 7 wild deer collected in the Mount Hamilton area, indicating that deer in the wild state may be carriers of the infective agent. *Anaplasma marginale* has been observed in blood smears from mule deer and whitetailed deer in Wyoming.<sup>5</sup>

Latent *A. marginale* infections were produced in certain species of antelope in South Africa by injection of blood from known bovine carriers; the infection was then transferred back to cattle.<sup>6</sup> These studies indicated that certain species of deer and antelope are capable of harboring *A. marginale* infection in a latent state and that infection of susceptible cattle can result following inoculation of blood from these carriers.

The present study was conducted to provide additional information on the transmissibility of *A. marginale* infection between cattle and deer, since this relationship may prove to be of vital importance in determining the approach to con-

trol of the disease on ranges occupied by deer, cattle, and vector ticks. It is also of interest, particularly to those in the field of game management, to learn more concerning the susceptibility of deer to clinical anaplasmosis.

#### EXPERIMENTAL PROCEDURE

Four male Columbian black-tailed deer (*Odocoileus hemionus columbianus*), 3 to 5 years old, that had been in captivity since fawnhood, were used. Of the 4 deer, 3 originated in the coastal range area and 1 in the Sierra Nevada range area of California. They were confined in an enclosure at the state game farm at Yountville, Calif., prior to and during this experiment.

On July 11, 1957, each deer was inoculated, subcutaneously, with 20 ml. of blood pooled from 2 cows known to harbor the same strain of *A. marginale*, having previously recovered from experimentally-induced anaplasmosis. Immediately preceding the inoculation, a sample of blood was collected from each deer for the purpose of determining the *Anaplasma* complement-fixation (CF) status and to establish preinoculation blood values. Starting two weeks after the date of inoculation, the deer were caught at weekly intervals until the eighth week, and for a final time 16 weeks following inoculation, and blood samples were taken for studies and CF testing. The deer were under daily observation for inappetence or depression, and their physical weakness was judged by the ease of handling at the time blood samples were taken.

Hematological values were determined for each sample and blood smears, stained by the Giemsa method, were examined. *Anaplasma* counts were determined by examining several hundred red blood cells in several fields of the microscope and recording the percentage which contained organisms.

Packed cell volume (PCV) of erythrocytes, determined by the Wintrobe hematocrit tube technique, was used as the indicator of anemia. The icterus index was determined by comparing the color of the plasma layer in the hematocrit tube with icterus-index standards.

In order to test the transmissibility of the infection from deer back to cattle, 2 splenectomized calves were inoculated with blood from individual deer. Calf 43 was given 8 ml. of blood, subcutaneously, from deer 1 at the sixth week following inoculation, and calf 214 was given 17 ml. of blood, subcutaneously, and 12 ml., intravenously,

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from deer 4 at the sixteenth week following inoculation with infective blood.

Antigen supplied by the Animal Disease and Parasite Research Division of the Agricultural Research Service was used in the CF test in a dose of 2 antigenic units. Deer serums were inactivated at 56 C. for 20 minutes. The serums from calves were inactivated at 58 C. for 35 minutes. Serum samples were diluted serially in 0.85 per cent saline containing egg white diluted 1:40. The total test volume was 2.5 ml., consisting of 0.5 ml. of each of the five reagents. The hemolytic system consisted of 2 per cent sheep cells of blood group "O" sensitized with 2.5 units of hemolysin. Complement, in a dose of 2 exact units, was determined by titrations read visually for 100 per cent lysis. Fixation was permitted to progress for one hour in the 37 C. water bath. Sensitized cells were then added, with the second incubation continuing for 45 minutes. Racks were placed in the refrigerator and the tests were read the following morning. To make readings for antibody content of serums comparable, all of the samples for a given animal were run at one time. Fixation was read visually at 1+, 2+, 3+, and 4+, with titers set at the dilution showing 2+ or stronger fixation.

#### RESULTS AND OBSERVATIONS

All 4 inoculated deer developed *A. marginale* infections that were detected by antibody response and blood smear examination between the second and eighth weeks following inoculation.

Deer 1, 2, and 3 revealed only subclinical infections. At peak levels, *Anaplasma* were found in 2, 4, and 8 per cent, respectively, of the red blood cells during the fifth or sixth weeks following inoculation. None of the 3 deer showed a loss of appetite or physical weakness, but in all 3 there was a slight depression of erythrocyte PCV at the point of highest *Anaplasma* count (table 1).

Deer 4 developed a moderately severe anaplasmosis infection which reached its peak six weeks following the inoculation.

At this point, 22 per cent of the red blood cells contained *Anaplasma* organisms and the PCV reached a low of 23.9, as compared to the preinoculation value of 51.0. The icterus index at the point of greatest anemia was 10, representing only a slight increase above the preinoculation normal levels of 2 to 5. Observations on the seventh and eighth weeks showed progressive decline in the numbers of *Anaplasma* and steady increase in PCV (table 1). At the sixteenth week, the PCV had returned to a normal value of 51.5.

At the point of greatest anemia, six weeks after infection, deer 4 revealed some inappetence and was much weaker than normal. Due to struggling when restrained, his respiratory movements would become abnormally violent and labored. One temperature reading of 103.1 F. was recorded during rest at this point in the infection. At the seventh week, he appeared outwardly normal but was still somewhat weak. At the eighth week, he seemed entirely normal. There was no observable loss of weight or condition during the clinical phase of the infection. The slight icterus indicated by blood examination was not detectable on his mucous membranes.

The relationship of antibody response to *Anaplasma* population in the red blood cells for all 4 deer is shown (graph 1). All showed a marked and uniform antibody response. The titers had increased sharply by the time the first *Anaplasma* organisms were detected, and remained high until they had decreased to low levels at the eighth week following inoculation. Between eight to 16 weeks after infection, the CF titers had declined nearly to preinfection levels.

Splenectomized calf 43, inoculated with

TABLE 1—Relationship of *Anaplasma* and Packed Cell Volume of Red Blood Cells in 4 Deer Experimentally Infected with *Anaplasma marginale* from Carrier Cattle

Days after infection	Deer 1		Deer 2		Deer 3		Deer 4	
	r.b.c.* with A.** (%)	PCV†	r.b.c. with A. (%)	PCV	r.b.c. with A. (%)	PCV	r.b.c. with A. (%)	PCV
0†	0	48.5	0	50.0	0	50.0	0	51.0
14	0	51.0	0	57.0	0	50.5	0	49.3
21	+	50.0	+	54.0	+	51.0	+	47.0
28	+	50.0	+	56.5	+	49.0	+	45.2
35	2.0	44.0	1.0	53.5	2.0	45.0	1.0	43.5
42	1.0	47.9	4.0	44.0	8.0	37.0	22.0	23.9
49	+	52.0	+	48.2	+	45.8	4.0	50.0
56	0	52.3	0	51.5	+	43.5	+	38.5
112	0	59.5	0	62.0	0	55.0	0	51.5

\*r.b.c.—red blood cells; \*\*A.—*Anaplasma*; †PCV—packed cell volume; ‡each deer was inoculated subcutaneously on 7-11-57 with 20 ml. of blood pooled from 2 cows that were carriers of the same strain of *A. marginale*; §*Anaplasma* present in less than 1 per cent of the red blood cells.

blood from deer 1 at the sixth week of infection when 1 per cent of the red blood cells contained Anaplasma bodies, developed a fatal case of anaplasmosis after an incubation period of 22 days. In this calf, 60 per cent of the red blood cells contained Anaplasma and the PCV dropped to 6.0 on the day preceding death. In splenectomized calf 214, inoculated with blood from deer 4 at the sixteenth week of infection, Anaplasma organisms were observed 21 days after inoculation, and death ensued on the twenty-sixth day when they were found in 68 per cent of the red blood cells. Both of these calves showed marked antibody response preceding the rapid increase of Anaplasma in the red blood cells.

# DISCUSSION

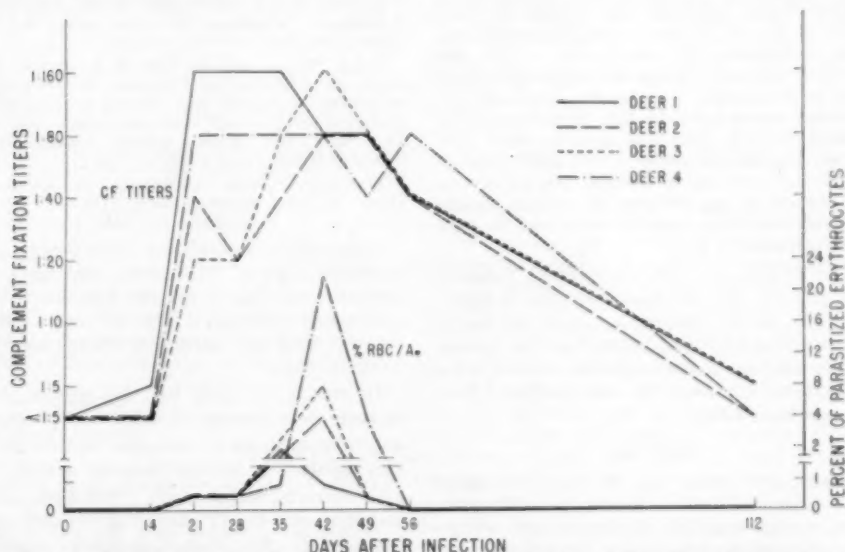
The experimental evidence indicates that the Columbian black-tailed deer is a susceptible host for the etiological agent of bovine anaplasmosis. The *A. marginale* infections in 3 of the 4 deer were readily detected by identification of Anaplasma in the red blood cells and by antibody response, but were inapparent clinically. In 1 of the 4 deer, anaplasmosis was clinically recognizable, characterized by physical weakness and anemia, but the deer recovered after a brief period of depressed

activity. While the authors hesitate to speculate on the importance of anaplasmosis as a disease among wild deer, these observations indicate the possibility of its occurrence and the need for determining its incidence.

The successful transmission of infection from deer 1 to splenectomized calf 43 demonstrates that the blood of deer can be infectious even though the deer may show no signs of illness. Transmission of infection from deer 4 to splenectomized calf 214 showed the persistence of infection in this deer for at least two months following the rise and fall of Anaplasma. Further work is planned to determine the duration of the carrier state in these deer.

The transmission of *A. marginale* between the two species seems possible in areas where cattle and deer occupy the same range and where ticks capable of transmitting infection are abundant. This relationship of cattle, deer, and ticks prevails in large areas of rangeland in the western part of the United States.

The antibody response was marked in these deer. Titers appeared at or before the time of the first appearance of Anaplasma and remained high until after their decline. The initial antibody response is similar to that reported in calves by Gates



Graph 1—Relationship of Anaplasma (percentage of red blood cells with Anaplasma) and antibody responses (complement-fixation titers) in 4 deer experimentally infected with *Anaplasma marginale* from carrier cattle.

*et al.*,<sup>4</sup> in which positive CF reactions developed on or up to nine days before the appearance of *Anaplasma* in the red blood cells.

The use of deer serums in the serological test posed no unusual problems, although a few modifications from the tests used for cattle serums should be mentioned. Inactivation at 56 C. for 20 minutes was considered adequate for destruction of native complement and provided serums free of anticomplementary properties. Absorbing of serums with normal bovine cells to eliminate any reaction with the erythrocyte stroma in the antigen was not deemed necessary, because deer serums had been found<sup>1</sup> to contain little or no antibodies to bovine erythrocytes.

When conducting quantitative tests with cattle serums, it has been customary to add normal bovine serum to the saline diluent for the purpose of masking the anticomplementary action of the antigen. Proteins of the test serum apparently perform this function in the lower dilutions but, as the serum is diluted, the anticomplementary effect of the antigen may become manifest unless additional proteins are present. Under the conditions of this test, it might be expected that normal deer serums would be used in the saline diluent. However, many deer serums are reported to contain Forssman antibodies and possibly other antibodies that may react with sheep cells.<sup>1</sup> The use of such serum containing native hemolysin could give an uncontrolled addition to the dose of hemolysin. Consequently, egg white was substituted and added in amounts approximating a 1:20 dilution of serum.<sup>1</sup>

This protein solution was devoid of antibodies to any of the test substances (*Anaplasma*, cattle erythrocytes, and sheep erythrocytes). The egg white not only masked the anticomplementary effect of the antigen but also had some effect in protecting complement through the prolonged incubation at 37 C. This was apparent when complement controls containing 2, 1½, and 1 units of complement were run in parallel. The set of controls diluted in egg white-saline solution showed more advanced lysis than those diluted in plain saline solution.

The results of this experiment indicate that the CF test for anaplasmosis is applicable to deer serums as well as cattle serums. The CF titers present in the typical bovine carrier animal appear to be higher than those recorded 16 weeks after infection in these 4 deer.

#### SUMMARY

Four adult male Columbian black-tailed deer inoculated subcutaneously with blood from bovine carriers of *Anaplasma marginale* developed *Anaplasma* infections that were readily detected by blood smear examination for *Anaplasma* and by rise in

complement-fixation titers. Three of the infections were inapparent clinically, while 1 deer demonstrated moderately severe anaplasmosis characterized by anemia and weakness. Blood from 2 of these deer, taken after the appearance of *Anaplasma* in the red blood cells, produced acute, fatal anaplasmosis after inoculation into 2 splenectomized calves. The antibody responses to these infections in the deer were marked, with complement-fixation titers rising sharply by the time *Anaplasma* appeared in the red blood cells and remaining high until the decline of *Anaplasma*. Attention is called to the possibility of transmission of *A. marginale* infection between cattle and deer on ranges occupied by these animals and vector ticks.

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*Leptospirosis in Foxes.*—On a fox farm, in Poland, 44 of 262 adults died of leptospirosis and nearly all the females in late pregnancy aborted. The disease spread rapidly, and the course of illness was two or three days.

It was controlled by the use of anti-leptospirosis serum, 15 to 18 ml. to contact adults and 20 to 25 ml. plus antibiotics to sick adults. A second dose of serum was given seven to ten days later then, after another ten to 17 days, all adults were vaccinated. The later positive reactions were chiefly to *Leptospira icterohaemorrhagiae*.—*Vet. Bull.* (Jan., 1958): Item 44.

# Serological Survey for *Leptospira Pomona* Antibodies in Cattle and Deer in Massachusetts

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FROM 1940 to 1950, investigations by comparatively few laboratories focused increasing attention upon leptospirosis. Recognition of the disease as a public health and livestock sanitation problem created a demand for additional diagnostic and investigative facilities. Recently, simple and reliable techniques have been developed which can be incorporated into the routine of laboratories already established for the diagnosis of other infectious diseases.

With the expansion of diagnostic facilities and the simplification of laboratory techniques, *Leptospira pomona* infection of cattle and swine has been found in every part of the United States.<sup>1</sup> Several individual states have conducted surveys of the cattle population. The results of a few of the more complete survey reports employing large numbers of cattle are shown (table 1).

These four surveys were made by serological examination, which is a useful and

The identification of *L. pomona* as the primary cause of bovine leptospirosis in the United States prompted a decision to start investigations with a serological survey to determine the presence of *L. pomona* antibodies found in the blood of cattle in Massachusetts. Since deer have been considered a possible source of *L. pomona* infection in cattle,<sup>1,2</sup> a serological survey of deer was planned for the deer-hunting season.

## MATERIALS AND METHODS

The combination plate-capillary tube agglutination test of Stoenner<sup>3,4,5</sup> was selected as most adaptable for survey work with *L. pomona* in this laboratory. The technique is simple, the test is easy to read macroscopically, and the results compare favorably, in sensitivity, with the agglutination-lysis test. It has the additional advantage of employing a stable, killed antigen, nonhazardous to the laboratory worker. Antigen for the combination plate-capillary tube agglutination test was prepared and standardized according to directions.<sup>1</sup>

In the survey, cattle serums examined for antibodies against *L. pomona* originated from two

TABLE 1—Serological Survey Reports on the Incidence of *Leptospira Pomona* Infection in Cattle

	No. of cattle tested	Cattle infected (%)	No. of herds tested	Herds infected (%)	Diagnostic criteria test and dilution
New York <sup>6</sup>	1,074	12.8	105	35.2	C-F 1:4
Ohio <sup>7</sup>	10,000	4.12	725	26.7	A-L 1:100
Illinois <sup>8</sup>	15,018	11.2	1,528	27.4	A-L 1:10
Washington <sup>9</sup>	34,718	12.0	3,324	6.0	CP-CTA 1:160

<sup>2,3,4,5</sup> Refer to references; C-F = complement-fixation test; A-L = agglutination-lysis test; CP-CTA = combination plate-capillary tube agglutination test.

practical tool for the detection of leptospirosis, being both inexpensive and less time consuming than other examinations.

In 1955, the Department of Veterinary Science at the University of Massachusetts expanded its services to include facilities for limited investigation of leptospirosis.

From the University of Massachusetts, Amherst.

Contribution No. 1132, Massachusetts Agricultural Experiment Station, Amherst.

Based on a thesis submitted by the senior author to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the M.S. degree.

The authors acknowledge the assistance of Drs. E. R. Coon and W. C. Ferrall of the Agricultural Research Service, U.S.D.A.; the staff of the Brucellosis Laboratory in Jamaica Plain for supplying blood samples from cattle throughout Massachusetts; and C. F. McLaughlin and E. M. Pollock of the Massachusetts Division of Fisheries and Game for supplying blood samples from deer.

sources: (1) private herd tests submitted directly to this laboratory from herds in which abortions had occurred or where leptospirosis was suspected, and (2) serums obtained from the U. S. Department of Agriculture after testing at the Brucellosis Testing Laboratory in Jamaica Plain, Mass.

Testing was continued until approximately 5 per cent of the total cattle population and 5 per cent of the herds were examined. As far as possible, attempts were made to distribute testing in proportion to the cattle population of each county. Figures were based on an estimated total of 190,450 cattle and 9,245 herds. Records were kept to identify individual animals in herds tested, to allow further investigation in positive herds.

Deer blood samples were obtained during the hunting season through the cooperation of the Massachusetts Division of Fisheries and Game.



Each deer-checking station was supplied with a box of stoppered test tubes, a marking pencil, and directions for collecting samples. As the deer were weighed, blood was obtained from the heart, chest cavity, or large blood vessels and given the same identification as on station records.

After allowing erythrocytes to settle during overnight refrigeration, serums were screened by the rapid plate agglutination test.<sup>7</sup> This test allowed quick elimination of all negative serums. Those showing positive reactions were further tested by both the plate dilution test and the capillary tube agglutination test in serum dilutions of 1:10, 1:40, 1:160, and 1:640. Results were recorded in the plate dilution test as positive or negative through each dilution. The capillary tube agglutination test, allowing finer differentiation of results, was recorded as 1+, 2+, 3+, or 4+, depending upon the amount and degree of agglutination found in each tube dilution. The two tests were used as a double check and the results of both were in agreement.

Herds which contained cattle with serum titers of 1:160 or greater were considered infected. In these infected herds, cattle with positive titers of 1:40 were classed as suspicious reactors. Occasionally, nonspecific properties encountered in bovine serums will produce a positive agglutination reaction in the 1:10 and the 1:40 dilutions.<sup>7</sup> In the absence of any clinical history, herds were considered free of leptospirosis if all serums were negative or if none possessed a positive titer greater than 1:40 on the capillary tube test.

### RESULTS

The survey of Massachusetts cattle began Nov. 28, 1955, and continued until April 1, 1957. During this period, 10,780 cattle in 491 herds were tested for the presence of leptospiral antibodies. This represents 5.6 per cent of the estimated total cattle population and 5.3 per cent of the total number of herds. Of the 491 herds tested, 13 (2.6%) contained 1 or more posi-

tive animals, and of the 10,780 samples from these herds, 90 (0.83%) showed an agglutinating reaction in sufficiently high titer to be classified as positive reactors. Five of the 11 counties tested, in Massachusetts, contained at least one herd considered to be infected (table 2).

The deer population in Massachusetts is estimated at 20,000. Of the 4,100 deer killed during the hunting season, 1,537 were brought into the nine checking stations. Samples from 653 of these deer were submitted. Twenty-five of the samples were unsatisfactory for testing. The remaining 628 blood samples were negative for the presence of *L. pomona* antibodies (table 2). Over 400 of these samples were tested for brucellosis. All were negative. The number of samples tested for leptospirosis represents 3.14 per cent of the estimated deer population of the state. The deer ranged in age from 5 months to 8½ years and, of those tested, 359 were males and 269 females.

### DISCUSSION

From the results obtained, it would appear that the incidence of bovine leptospirosis in Massachusetts is slight when compared to survey results of other states. Differences in interpretation of results may account in part for this discrepancy. There is no doubt that, with a less strict interpretation of results, the incidence of bovine leptospirosis could have appeared much higher. Forty-one additional herds contained cattle reacting only in a serum dilution of 1:40. In the absence of clinical history or higher titers in the herd, these herds were classified as free of leptospirosis on the assumption that the 1:40 posi-

TABLE 2—Incidence of *Leptospira Pomona* Antibodies as Shown by Combination Plate and Capillary Tube Agglutination Test on Cattle and Deer Serum in Massachusetts

County	No. cattle tested	Positive cattle		No. herds tested	Positive herds		No. deer* tested
		(No.)	(%)		(No.)	(%)	
Barnstable	104	0	0	2	0	0	33
Berkshire	1,718	19	1.1	105	4	3.8	151
Bristol	1,785	0	0	56	0	0	0
Essex	557	0	0	35	0	0	0
Franklin	1,388	2	0.15	83	1	1.2	119
Hampden	515	52	10.1	24	4	16.6	51
Hampshire	1,018	5	0.5	45	1	2.2	84
Middlesex	426	0	0	18	0	0	0
Norfolk	291	0	0	10	0	0	0
Plymouth	559	0	0	18	0	0	0
Worcester	2,439	12	1.5	95	3	3.2	148
Dukes	0	0	—	0	0	—	21
Nantucket	0	0	—	0	0	—	21
Total	10,780	90	0.83	491	13	2.6	628

Diagnostic criteria—combination plate and capillary tube agglutination test 1:160 dilution. \*All deer negative.



tive agglutination indicated a nonspecific reaction. On the other hand, the survey may have omitted some actively infected herds.

The United States Department of Agriculture and the Massachusetts Division of Livestock Disease Control are conducting a voluntary brucellosis eradication program in Massachusetts, and most of the serums tested were received from the Brucellosis Testing Laboratory. Most herds in this program are enrolled on a test and slaughter basis. Cattle owners with abortion problems would be reluctant to participate in such a program. Thus the survey may have missed some infected herds with abortions due to leptospirosis. Cattle under 30 months of age were not covered by this method of survey. For practicability and economy, however, the plan followed fitted existing conditions.

Although no formal attempt was made to collect clinical history, information available on a few of the infected herds may be of interest.

Herd 1 had an abortion problem of long duration, but no history of clinical illness or mastitis, although 2 of the cows had eye complications. Blood had been sent to New York State for testing, once in September, 1953, by the complement-fixation test, and later in April, 1955, by the agglutination-lysis method. Both tests showed positive reactors for leptospirosis. Those positive reactors still in the herd at the time of testing at Amherst in November, 1955, showed correspondingly lower titers but, in general, agreed with the results of the New York test. Some new positive reactors were also found. In the original test at Amherst, nine samples were considered positive, two suspicious, and 36 were found to be negative. Over a 17-month period, three herd tests were conducted. Although some of the reactors had been culled, those remaining showed a gradual decrease in titer. The last test in June, 1957, showed no positive reactors in titers exceeding 1:40. It was thought that horses formerly stabled in the barn might have transmitted leptospirosis to the cattle. However, serological tests of these animals failed to show appreciable agglutination.

Samples from herd 2 (the owner raises all replacements) were originally submitted for mastitis testing. Twelve cases of atypical mastitis had occurred. Cows

dropped in production and the milk was thick, grayish yellow, and occasionally bloody. No clinical signs of mastitis appeared in the udder, and bacteriological examinations of the milk showed no significant organisms. One month later, in November, 1955, 7 or 8 cows aborted, many of which had not showed mastitis. Blood samples from 4 of the aborting dams reacted positively to *L. pomona* antigen on the capillary tube test in dilutions up to 1:10,240. In December, 1955, a herd test was made. Of 71 blood samples submitted, 33 were positive in high titers. Deer were frequently seen in the pasture with the cattle just before the abortions occurred. This possible means of infection prompted the survey on deer.

A third herd of cattle was located between, and adjacent to, herds 1 and 2. Cattle on this farm were tested for leptospirosis and found to be free of the disease. As far as could be determined, there was no common water supply.

A partial test was made on herd 4. Of the six samples of blood submitted, three were positive for leptospirosis in dilutions of 1:2,560 and the other three were positive for vibriosis. The three serums positive for vibriosis showed no reaction against *L. pomona* antigen, but the three positive for leptospirosis showed agglutinating reaction in the 1:25 dilutions for vibriosis. Undoubtedly, this herd had abortions attributable to both leptospirosis and vibriosis.

A bull from herd 5 had been submitted to an artificial breeding unit but was rejected because of a positive titer for leptospirosis, by the agglutination-lysis test. A blood sample from the bull was sent to this laboratory, and our results confirmed those made by the state involved. A herd test was requested and, of 27 samples submitted, five reacted in significant dilution. There has been no clinical evidence of infection in the herd. The only additions to the herd have been young calves. Contaminated water supplies have not been investigated as a possible source of infection.

With the exception of the survey on deer, no further attempt has been made to trace the source of infection in these positively reacting herds. It appears from the results of this survey that deer can not be incriminated as a source of infection for cattle in this area. The absence of such a wild animal reservoir correlates well with

the low incidence of infection found in cattle.

#### SUMMARY AND CONCLUSIONS

1) A survey was made to determine the presence of *Leptospira pomona* serum antibodies in cattle in Massachusetts. Of 10,780 cattle in 491 herds tested, 90 cattle (0.83%) in 13 herds (2.6%) were serologically positive.

2) The results of a survey of 628 deer killed during the 1956 hunting season are included. The total estimated deer population in Massachusetts is 20,000. None of the deer tested showed agglutinating antibodies against *L. pomona*.

3) Although the incidence of *L. pomona* does not appear to be great at this time, it does exist in Massachusetts cattle and the incidence may be somewhat greater than demonstrated.

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- virulent and nonvirulent mutants or on different serotypes of *Leptospira*.
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- Liver Abscesses in Beef Cattle.**—More than 1.5 million bovine livers were condemned in the past year, by the U.S.D.A. Meat Inspection Service, because of abscesses. For all slaughter operations, in the nation, this would mean about 2 million livers condemned. Most were in animals from feedlots. Based on three years of tests, the Food and Drug Administration is expected to approve the feeding of Aureomycin (70 mg./head/day) since this seemed to reduce the abscesses by 19 per cent. This is the same level approved for combating foot rot of cattle.—*Cattleman* (Feb., 1958): 12.
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- Thermoregulation in Pigs.**—It is usually not possible to raise pigs less than 2 weeks old successfully in cold or drafty quarters. Pigs less than 6 days old showed no increased metabolism when the environmental temperature was lowered. After five minutes in the cold, white pigs became cyanotic and their temperatures did not return to normal after 30 minutes in a warm environment. Thermogenic response started when pigs were about 9 days old and was nearly perfect by the twentieth day.—*Nature* (Oct. 26, 1958): 858.

# Pseudomonas Infection of the Eye of the Dog Resulting from the Use of Contaminated Fluorescein Solution

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THE ROLE of *Pseudomonas aeruginosa* in infections of the eye of man has received considerable attention in the literature.<sup>4,6,7</sup> The relationship of this organism to corneal ulcers, and its introduction into the eye via contaminated solutions used routinely by the ophthalmologist, has been discussed.

*Pseudomonas aeruginosa* has been recovered from the eyes of dogs with conjunctivitis and ulcerative keratitis,<sup>1,2</sup> but no mention of its transmission through contaminated solutions could be found in the veterinary literature. This paper reports 2 cases in which severe corneal infections in dogs apparently developed from the use of a fluorescein solution harboring this organism.

## CASE 1

On March 7, 1956, a 3-year-old female Weimaraner was brought for treatment of a keratoconjunctivitis caused by a large foxtail lodged behind the membrana nictitans. Removal of the foreign body revealed a deep corneal ulcer, 4 mm. in diameter, which extended centrally from the limbus at the 7 to 8 o'clock position. Smears taken from the ulcer and from the conjunctival sac showed many gram-positive organisms which, on subsequent culture, proved to be *Micrococcus pyogenes*. The animal was discharged, with home medication of 0.25 per cent chloramphenicol solution and 1.0 per cent atropine solution.

Four days later, the ulcer was difficult to detect and the external signs of inflammation had almost disappeared. The third eyelid covered the lower half of the cornea and had to be everted so that the lesion could be seen. Because the ulcer was hard to see, 2 drops of fluorescein solution (2%) was instilled, allowed to remain for 60 seconds, and then flushed out with sterile saline solution. The nasal border of the ulcer stained faintly, and in the center of the area there were three deeply stained spots, 2 mm. in diameter. The owner was

advised to continue treating the eye with the antibiotic for a few days more.

Three days later, the eye was much worse and the dog was again brought to the office. There was marked blepharospasm, photophobia, copious purulent secretion, edema, infiltration of the cornea, hypopyon, and myosis. A deep corneal ulcer involved the original affected area and also extended 3 mm. further, centrally. The eye was bandaged and home treatment with atropine plus the hourly use of chlortetracycline drops was ordered. Twenty-four hours later, the ulcer was deeper and appeared to penetrate as far as Descemet's membrane. A stained scraping showed many gram-negative rods which were tentatively identified as *Ps. aeruginosa*. Subsequent culture confirmed this belief.

Paracentesis was performed and treatment with 1 per cent atropine drops twice daily, ophthalmic Neosporin<sup>\*</sup> solution every hour, and hot packs twice daily was started. The ulcer responded to this therapy and within two weeks it had healed, leaving only a slight scar.

## CASE 2

On June 10, 1956, a 5-year-old Border Collie was brought for treatment because of extreme blepharospasm and epiphora which the owner had noticed only a few hours before. Examination under local anesthesia revealed a diffuse hyperemia of the conjunctiva, ciliary injection, a rough, lusterless cornea, and a moderately constricted pupil. When stained with fluorescein, employing the same solution used in case 1, the cornea showed a deeply staining abrasion involving the upper two thirds of its surface. Atropine and 0.25 per cent chloramphenicol drops were instilled and the eye was bandaged. The dog was discharged. After 24 hours, the bandage was removed and the eye looked about the same. Two days later, when the animal

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<sup>\*</sup>Neosporin, the trade name for an ophthalmic solution containing polymyxin B sulfate, neomycin sulfate, and gramicidin, is produced by Burroughs Wellcome and Co., Tuckahoe, N. Y.

was again brought to the office, the cornea was translucent and in its center was a deep ulcer 5 mm. in diameter. There was marked conjunctival and ciliary injection. When stained, a scraping made from the edge of the ulcer showed many small, slender gram-negative rods. Cultures showed these were *Ps. aeruginosa*.

Treatment consisted of the topical application of ophthalmic Neosporin solution every hour, with instillation of 1 per cent atropine solution and hot compresses twice daily. Two nights later, the ulcer perforated. A severe endophthalmitis developed and three days later the eye was enucleated.

#### DISCUSSION

The fluorescein solution used in both of these animals was the only such preparation available in the outpatient clinic and had been in use approximately six months. When the bottle was shaken, a small amount of flocculent material was seen. A pure culture of *Ps. aeruginosa* was obtained on culture of this solution. Another unopened bottle of fluorescein solution on the pharmacy shelf was tested and found to be sterile.

The fluorescein solution would appear to have been contaminated by the dropper used to instill fluorescein into an eye infected with *Ps. aeruginosa*. Some of the exudate in the conjunctival sac was probably sucked up into the dropper and deposited in the bottle. Subsequent observation showed that quite frequently, when drops were put into the eye, exudate was sucked into the dropper because a sudden movement of the animal caused the tip to touch the conjunctiva. According to our records, *Ps. aeruginosa* had been recovered from the eyes of 3 dogs between the time that the fluorescein was prepared and the day it was used in case 1.

Since instillation of the contaminated solution failed to cause infection in other eyes in which it was used, it is postulated that only in these 2 dogs were conditions optimal for the growth and invasion of the organism. Thygeson,<sup>7</sup> commenting on this problem, states that

"solution-bottle contamination is much more common than the frequency of pyocyanic ulcers would indicate. The explanation for the low incidence of these ulcers, in spite of frequent accidental inoculation of the cornea with the organism, may lie in the experiment of McCulloch who showed that the inoculation of the

scratched rabbit cornea never resulted in pyocyanic ulcers unless the lids were kept closed after the inoculation."

In both cases reported here, the damaged cornea was inoculated with contaminated solution and then covered—in one case by the third eyelid, in the other by a dressing.

The rapidity with which the ulcers developed and the perforation of the cornea in 1 dog, despite vigorous therapy, are indications of the pathogenicity of this organism for the eye. This is in marked contrast to its behavior in other areas of the body where *Ps. aeruginosa* infections are characterized by chronicity, little systemic response, and rare dissemination. It has been stated<sup>8</sup> that in the eye the pathogenicity of different strains is extremely variable, with some being innocuous and others highly invasive.

Although fluorescein is the most frequently contaminated ophthalmic solution, the organism also has been recovered from solutions of boric acid, eserine, tetracaine, pilocarpine, ethylmorphine, scopolamine, atropine, and cortisone.<sup>6</sup> In order to determine how long a solution of fluorescein would contain viable organisms, a 1 per cent solution was inoculated with bacteria from case 2 and kept at room temperature. Pure cultures of *Ps. aeruginosa* were obtained seven months later, after which time the solution was inadvertently discarded.

The topical application of preparations containing polymixin B sulfate is regarded as the most effective therapy against this organism. However, these cases demonstrate that even vigorous therapy may be ineffective. They emphasize the need for preventive measures against accidental infections from contaminated medicaments.

Practical methods of preventing such accidental infections are the incorporation of an antibacterial agent in the solution, substitution of plastic squeeze-bottles for the standard type bottles, and the elimination of liquid fluorescein. As a bactericidal preservative, benzalkonium chloride, which is widely used as an antiseptic in ophthalmic solutions, has been reported to be ineffective against *Ps. aeruginosa*.<sup>4</sup>

The entire problem of contamination can be circumvented by the use of dry strips of fluorescein-impregnated paper in place of drops. This method, introduced by Kimura,<sup>5</sup> is ideally suited for veterinary use. The strips are prepared by soaking  $\frac{1}{2}$

inch of one edge of a 10- by 2-inch sheet of fine grade bibulous filter paper in 20 per cent fluorescein solution. When it is dry, the paper is cut into small strips 2 inches long and  $\frac{1}{4}$  inch wide. These are placed in a container having a screw cap and are then sterilized.

The manner in which the strips are used depends upon the condition of the eye. In dry or nonlacrimating eyes, a drop of water or saline solution is placed on the paper to dissolve the fluorescein and the tip then is touched to the conjunctiva. If the eye is moist the strip may be used dry. In no case should the paper be applied to the cornea, since the epithelium might be damaged. The advantages of the method are that the papers are sterile at the time they are used, and the amount of fluorescein instilled is enough to stain the lesion but not enough to require irrigation or cause unnecessary staining of the animal's face.

#### SUMMARY

Two cases are reported in which *Pseudomonas aeruginosa* infection of the eye apparently resulted from the use of contaminated fluorescein solution. The use of fluorescein paper to prevent solution-bottle contamination is described.

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**Viral Rhinotonsillitis in Dogs.**—A contagious disease which affected several thousand dogs in the past two years, in western and central France, was characterized by tonsillitis and purulent rhinitis,

and complicated by respiratory and nervous signs. It was reproduced with an aerosol of filtered tonsil suspension from affected dogs. The incubation period was four days. The etiological agent is being studied.—*Vet Bull. (Jan., 1958): Item 133.*

#### A Treatment for Osteogenesis Imperfecta in Kittens

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Osteogenesis imperfecta is a condition recognized with increasing frequency in cats during the last eight years, especially in the Siamese and Burmese breeds. The growing popularity of these breeds has brought to light two factors: (1) This condition is more common than heretofore realized; and (2) there are indications that a simple recessive hereditary factor is involved. Of 2,000 kittens of these breeds seen in 12 years, perhaps 100 (5%) have been affected.

The owners of cats that produce kittens affected with this skeletal deficiency often insist that some form of treatment be attempted. Physicians whom we consulted\* suggested the use of diethylstilbestrol and rest for affected female kittens and testosterone and rest for males. There is strong evidence that, in children, the use of these sex hormones hastens the development of the cortex of the bone.

When this therapy was first tried, some kittens were treated with sex hormones and rest, while others were treated with rest alone. In both instances, improvements were noticed after three weeks of confinement but the kittens not given the hormones had relapses repeatedly, and it was necessary to confine them until they were 1 year old. The kittens given the hormones and rest would often have recurrences and have to be reconfined several times, but usually they had recovered sufficiently when they were 6 months old that no more fractures occurred.

Diagnosis of this skeletal deficiency is indicated by the history of the case. The sudden onset of lameness and severe pain, generally restricted to the hindquarters, is

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typical. It is often noticed in kittens as soon as they are old enough to play vigorously and it may persist until maturity (1 yr.).

Incomplete fractures generally occur in one or both femurs and, in the more severe cases, the thoracic and lumbar vertebrae may be involved. Definite indentations may be palpated along the spine at the point or points where the vertebrae are fractured. Vertebral fractures may cause trauma to the cord, resulting in partial or complete paralysis of the hindlegs. In some cases, fractures occur in the forelegs. Radiographs show the frail eggshell bone structure (fig. 1).

are allowed freedom to run and play, they will have recurrences. Confinement should continue until the permanent teeth have erupted. To accelerate the proper development of the skeleton of these kittens at an early age, repositol diethylstilbestrol ( $\frac{1}{4}$  mg. per lb. of body wt.) is given intramuscularly every three weeks to females. Males are given repositol testosterone ( $\frac{1}{2}$  mg. per lb.) intramuscularly every three weeks. Prednisone (Meticorten<sup>®</sup>) (1 mg. per lb.) is also given to kittens of both sexes. The diet consists of raw meats (beef heart, kidney, liver, fowl, and fish), supplemented with Diostate-D.<sup>®</sup>

Prevention of this condition is at

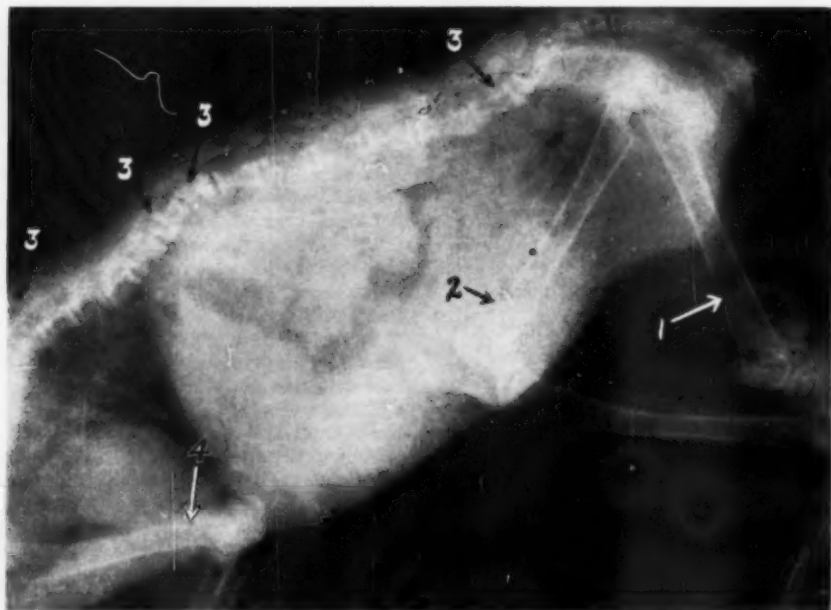


Fig. 1—Radiograph showing the frail eggshell bone structure and fractures (1, 2, 3, 4) in a kitten with osteogenesis imperfecta.

#### TREATMENT

Treatment consists of confining the kitten to a small area, providing a good diet and the proper sex hormone. A cage (3 ft. by 3 ft. by 10 in.), provided with a litter pan, is ideal for confining as many as 4 kittens until they are 4 months old; after this the cage will accommodate 2 kittens. Confinement alone for three weeks will allow healing to occur; however, if they

tempted by using males of a different blood line and desexing the affected offspring.

#### CONCLUSION

Of 28 kittens treated for osteogenesis imperfecta by confinement, good diet, and sex hormones, all are thriving except 2 that died of enteritis.

<sup>®</sup>Meticorten is produced by Schering Corp., Bloomfield, N. J.; Diostate-D is produced by the Upjohn Co., Kalamazoo, Mich.



## Effect on Pigs of Vitamin A Deficiency in Sows

In 1933, the birth of blind and deformed pigs from gilts fed a ration deficient in vitamin A was reported in Britain.

During 1956, four herds were studied in which many pigs died shortly after birth or were born blind. There was heavy mortality in 21 litters and a variety of eye defects in another 11 litters. In three of the herds, there was a gross deficiency in vitamin A in the feed for the dams. In two herds, little or no vitamin A was found in the livers of the pigs at birth. In one herd, the 2 sows which had been given vitamin A palmitate farrowed normal litters while 2 untreated sows lost their pigs.

All of the sows appeared normal and, except for blindness, there were few clinical abnormalities in the pigs. All were born at full term. On necropsy, there were gross abnormalities of the kidneys and lungs plus generalized edema. The eye changes ranged from complete disorganization to near normality.—*R. F. W. Goodwin and A. R. Jennings in J. Comp. Path. & Therap. (Jan., 1958): 82.*

## Lactose in Animal Feeding

Milk and whey products which are extensively used in animal feeds contain high levels of lactose. Young pigs and calves are able to tolerate high levels of lactose but this tolerance decreases with age. Poultry of all ages are unable to utilize even moderate levels of lactose.

In the intestinal tract of all animals, the effect of lactose is characterized by a lowering of the acidity and a change of the intestinal flora to an acidophilic type. In both mammals and poultry, lactose stimulates the synthesis of vitamin B by intestinal bacteria. It also favorably influences the absorption, retention, and utilization of calcium, phosphorus, and magnesium. It is a lipotropic agent and a sparer of choline.—*J. Dai. Sci. (Sept., 1957): 1114.*

**Activity of Fresh vs. Dried Rumen Liquid**—An *in vitro* test showed that fresh rumen liquid was highly active in digesting cellulose in an artificial rumen, but activity was either eliminated or considerably reduced when the rumen liquid was either concentrated or dried. This finding was supported by *in vivo* tests when the

cellulose digestion, in a 30-hour period, was reduced from 67.6 to 9.5 per cent when lyophilized (freeze-dried) rumen liquid was substituted for the fresh product. Lambs fed dried rumen powder (1 Gm./day) did not grow more rapidly or utilize feed more efficiently than did control lambs.—*Feeds Illus. (Feb. 1958): 34.*

## Induced Hypomagnesemia in Cows

Clinical grass staggers was produced experimentally, in New Zealand, in dairy cows after calving by feeding them a reduced ration with or without thyroprotein.

The serum magnesium was reduced by the feeding of thyroprotein alone or with underfeeding, sudden change in quality or quantity of feed, or when given immediately after calving, during estrus, or when the grazing or ruminating time was shortened.

Hypomagnesemia was probably produced by causing a negative energy balance, or digestive disturbances, or both.—*Vet. Bull. (Jan., 1958): Item 202.*

**Effect of Nutrition and Breed on Bovine Dentition**—In a limited observation, the age of eruption of the permanent incisor teeth in 28 heifers of four breeds was studied for nine months, in Britain. Pairs of paternal half sisters of about the same age were used, one being assigned to a group on a high nutritional plane, the other to a group on a low plane.

The mean ages of the eruption of the incisor teeth for all the heifers were 24.4, 30.7, 37.2, and 43.3 months respectively for the first, second, third, and fourth pairs. The Shorthorns shed their teeth considerably earlier than the Holstein-Friesians and Jerseys.

The deciduous incisors of heifers on a low nutritional plane wore more rapidly and the permanent incisors erupted later than in heifers on the high nutritional plane.—*Vet. Bull. (Jan., 1958): Item 251.*

**Crude Fiber in Calf Starters**—It is generally recommended that calf starters contain no more than 5 per cent fiber but many contain 8 to 10 per cent. When tested, there was no significant difference in the weight gains and starter or hay consumption in calves 8 weeks old when fed high and low levels of fiber.—*J. Dai. Sci. (Aug., 1957): 87.*

## Are We on a Therapeutic Binge?

No phase of medicine changes more rapidly and radically than does that involving therapeutic agents. To those allied with the medical professions, this has brought both benefits and tribulations. To realize the advantages of having the many new chemotherapeutic agents, one has only to recall the relative impotency of most of the drugs which were available prior to the advent of the sulfonamides and antibiotics, less than two decades ago.

Then, one practiced largely with one's preferred few stimulants, sedatives, and "alteratives." There were few "specifics." Today, with the many new antibiotics and synthetic drugs, such as the hormones, parasitocides, and tranquilizers, the lives saved and suffering prevented have greatly increased, but so has the complexity of the drug case and cabinet. Therapeutics, then a relatively minor, dull, and static subject, now requires the practitioners' alert attention to keep pace with its changes. The added time thus expended is probably compensated for by time saved in the treatment of patients; but what compensates for the increased mental concentration on therapeutics? Could it be that concentration on making the diagnosis suffers? Is there a more urgent tendency to get on with the treatment to see what will happen rather than to concentrate on the physical examinations and tests which would first ascertain the cause and nature of the malady? The possibility of quicker relief would be definitely commendable were it not for the risk of masking signs and symptoms, thus confusing the diagnosis.

### UNDESIRABLE PUBLICITY

Unfortunately, the public has also been aroused by news releases, many of them premature, and by advertising, much of it misleading, until it may seem that only those trained in medicine realize that they lack some of the "answers." Inevitably, what had been a highly scientific field is fast becoming tainted with some of the worst features of commercialism.

Recent editorials in leading medical journals have deplored the return, through communication mediums, chiefly radio and television, of many sales pressure gimmicks which should have become extinct with the old medicine show. An editorial in *The New England Journal of Medicine* (Aug. 19, 1957), in decrying the temptation to physicians of making "a fast buck,"

even proposed "adding to the ethical code . . . the prohibition of ownership . . . of stocks in . . . companies that sell remedies or appliances."

Aggressive advertising and salesmanship can be detrimental. For instance, streptomycin had demonstrated almost specific activity in cases of bovine shipping fever, in some areas at least; yet, because of sales pressures for other agents, its efficacy probably is not appreciated.

### QUESTIONABLE COMBINATIONS

Other unfavorable features of the therapeutic "binge" we have been experiencing are being mentioned more frequently. The rising concern about antibiotics in dairy products, resulting from their use in treating mastitis, could have dire consequences. A "scare" article published in one community resulted in a drastic drop in milk consumption. Which would be the greater evil—depriving many persons of the essential nutrients in dairy products, or possibly sensitizing a few to the effects of these antibiotics if used during illness? Both should be avoided. It has even been suggested that certain antibiotics which are extensively used by physicians be banned for use on food-producing animals.

Also disturbing is the rapidly expanding use of synthetic hormones and insecticides in food-producing animals. The species selectivity of systemic parasitocides is amazing. Fortunately they are being introduced with great precaution. They must not be prejudged, nor dare we ignore their potential for injury, both to the animal and to man as the ultimate consumer.

Returning to the commercial aspects of the problem, medical writers here and abroad have expressed concern over the trend toward the production and use of combinations of therapeutic agents. It has been demonstrated, contrary to claims, that combinations of certain antibiotics, instead of proving synergistic, were not even superior to the most effective agent alone. Meanwhile, the added agents increase the chance of creating sensitivities in the patient and resistance in pathogenic agents.

In veterinary medicine particularly, there is also the matter of economics. Why require clients to pay increased fees without increased value received, either because the required drug is in an expensive combination or, worse yet, because such drugs were given in lieu of accurate diagnoses?

## ABSTRACTS

### Vesicular Stomatitis Virus

Virus titrations were conducted simultaneously with initial isolations of field strains of New Jersey type vesicular stomatitis virus. Comparisons were made between the results of these and similar titrations using chicken embryo-propagated viral strains. Two of the field strains and one of the chicken embryo-propagated strains were later titrated in cattle and deer.

Minor differences in infectivity for certain hosts were found, but these could not be related to initial isolation from a particular animal species. Chicken embryo-propagated strains reached slightly higher titers in their accustomed hosts than in swine or mice.

Because of their sensitivity for initial isolations of vesicular stomatitis virus, chicken embryos are recommended for use in diagnostic procedures.—[Lars Karlstad and R. P. Hanson: *Primary Isolation and Comparative Titrations of Five Field Strains of Vesicular Stomatitis Virus in Chicken Embryos, Hogs, and Mice*. *Am. J. Vet. Res.*, 19, (Jan., 1958): 233-236.]

### Morphology of Anaplasma Marginale

Inoculation of three groups of splenectomized yearling calves, at approximately 20-day intervals, with fresh whole blood from an anaplasmosis-carrier animal resulted in the appearance of projections or tails extending from typical Anaplasma bodies in the erythrocytes of the infected animals. This phenomenon was observed in 5 of 6 animals inoculated. Previous investigators may have observed these unusual Anaplasma bodies.—[T. E. Franklin and H. E. Redmond: *Observations on the Morphology of Anaplasma Marginale with Reference to Projections or Tails*. *Am. J. Vet. Res.*, 19, (Jan., 1958): 252-253.]

### Hemangiopericytoma in the Dog

Hemangiopericytoma in the dog is a neoplasm with a striking repetitive pattern of vascular spaces surrounded by laminated whorls of cells morphologically distinct from those in other spindle-cell tumors. The intimate relation of the typical cells to the vascular spaces, their arrangement around the vessels outside the endothelial lining, the characteristic ovoid vesicular nuclei, and spindle-shaped cytoplasm of the cells proper are of cardinal importance in the recognition of this tumor and in differentiating it from other spindle-cell neoplasms.

On the basis of their morphological features, 34 (9%) of the cases of spindle-cell tumors in our series were diagnosed as hemangiopericytoma; all but one of the 34 tumors occurred in the skin and subcutaneous tissues of the dog. Histologically, there is little difference between the benign and malignant forms. Few mitotic figures occur in either and, although some of the recurrent neoplasms may present a slightly less organized ap-

pearance, malignancy is usually determined only upon recurrence or metastasis of the tumor.—[D. H. Yost and T. C. Jones: *Hemangiopericytoma in the Dog*. *Am. J. Vet. Res.*, 19, (Jan., 1958): 159-163.]

### Bacteriophage Typing of Micrococci

A method is described for phage typing of *Micrococcus pyogenes* as an aid in epizootiological surveys for staphylococcal bovine mastitis. With the use of seven selected phages, 93 per cent of 379 coagulase-positive, beta-hemolytic micrococci from bovine mastitis were typed. Cultures of the same phage type were subtyped by cross lysogenicity test. This suggests that reliable epizootic studies may be conducted by the application of phage typing and by determining the lysogenic nature of cultures of the same phage type.

With a group of phages used to type micrococci of human origin, only 66 per cent of 102 cultures of bovine origin could be typed.—[J. T. Sato and J. B. Wilson: *Bacteriophage Typing of Micrococci of Bovine Origin*. *Am. J. Vet. Res.*, 19, (Jan., 1957): 241-246.]

## BOOKS AND REPORTS

### Atomic Energy and Agriculture

The subject matter of this book has been directed mainly toward the contributions of atomic energy to the arts and technology of agriculture. Attention is given to soil-plant relations, plant metabolism, crop improvement, uses of radioisotopes in animal nutrition and metabolism, and the feasibility of food preservation by irradiation. The book is intended to serve the administrator, the research worker, and the student.—[*Atomic Energy and Agriculture*. Edited by C. L. Comar. 450 pages. American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington 5, D.C. 1957. Price \$9.50.]

### Stedman's Medical Dictionary

The nineteenth edition of this dictionary has been brought up to date with several thousand new entries and a number of new illustrations. Also included are tables of anatomical terms in general use, new British anatomical nomenclature, official pharmaceutical preparations, and biographical sketches of persons important in the history of medicine. The names of pharmaceutical products are given in English instead of Latin as previously, to conform with the new American and British pharmacopoeias.

Veterinarians will find this a valuable reference since it includes words and terms used in veterinary medical as well as related fields.—[*Stedman's Medical Dictionary*. 19th ed. By Norman Burke Taylor and Allen Ellsworth Taylor. 1656 pages; illustrated. Williams and Wilkins Co., Mt. Royal and Guilford Ave., Baltimore 2, Md. 1957. Price not given.]

## THE NEWS

### Dr. Greene Named Dean at Alabama Polytechnic Institute

Dr. James E. Greene, a member of the faculty since 1937 and head of the large and small animal clinics since 1955 of the School of Veterinary Medicine, Alabama Polytechnic Institute, was appointed dean on March 1, 1958. He succeeds the late Dr. Redding S. Sugg whose death occurred last January 4. Since then, Dr. Greene had served as chairman of a special five-man advisory committee which functioned in an administrative capacity.



Dr. James E. Greene

Born in Columbus, Ga., in 1911, the new dean received his public school education there and then attended Emory University in Atlanta before enrolling at API where he received his D.V.M. degree in 1933 and his M.S. in 1939. In the interval, Dr. Greene practiced for about a year, did meat inspection and TB eradication work with the federal Bureau of Animal Industry, and was on active duty with AVS from 1935 to 1937 in food hygiene work.

In 1937, he joined the veterinary faculty at Auburn where he first was a graduate assistant in anatomy and then taught veterinary medicine from 1939 to 1942. There followed four years of military service during which Dr. Greene entered the Veterinary Corps as lieutenant and was discharged with the rank of major in 1946. Upon his return, he resumed teaching veterinary medicine and was made head of clinics in 1955.

In addition to his teaching duties, Dr. Greene has been active in professional association work and civic affairs. Joining the AVMA in 1933, he has been a member of the AVMA Council on Education since 1954 and its chairman since 1955; he was a member of the AVMA Research Council from 1951 to 1955, representing the field of small animal surgery. He served as president of the Alabama V.M.A. in 1957 and as president of the Auburn Club and Auburn Faculty Forum in 1947.

He has also been active in city planning and administration, was a member of the Auburn City Council in 1955-1956, and a member of the Boy Scout Council for several years. He is a member of Alpha Psi and Alpha Lambda Chi fraternities and holds honorary membership in Phi Zeta. He is the author or co-author of many papers in the field of small animal medicine and surgery and of chapters of several books on canine medicine.

### American College of Veterinary Toxicologists Organized

The American College of Veterinary Toxicologists was formally organized on Jan. 15, 1958, at Salt Lake City, Utah, with the adoption of a constitution and bylaws. The name of the organization was changed from the American Board of Veterinary Toxicologists to the American College of Veterinary Toxicologists.

Following are some of the 11 objectives of the college:

To further the educational and scientific progress in the specialty of veterinary toxicology and to encourage education, training, and research in this field.

To establish standards of training and experience for specialists in veterinary toxicology.

To promote discussion and interchange of ideas in the following fields of veterinary toxicology: teaching, research and development, diagnosis, nomenclature, and public health.

To review manuscripts and offer constructive criticism, as well as to review published material, and maintain a file of the findings for the benefit of members.

To encourage adoption and employment of uniform clinical and laboratory reporting methods including nomenclature, reporting and recording of standards, and standardization of collection and sampling techniques.

The all-day program at the Salt Lake City meeting included the presentation of technical papers by the following speakers: Dr. J. W. Dollahite, Marfa, Texas—Poisonous Plants; Dr. W. E. Brock, Stillwater, Okla.—Chlorinated Naphthalene Poisoning; Mr. D. D. Maag, Fort Collins, Colo.—Lead; J. C. Smith, Manhattan, Kan.—Arsenicals; and P. V. Christofferson, Pleasant Grove, Utah—Fluorosis.

The present officers of the organization were continued in office until the next meeting of the college, which will be held in conjunction with the 1958 AVMA Convention in Philadelphia. The

present officers are: Drs. H. E. Fergusson, Anaconda, Mont., president; G. R. Spencer, Pullman, Washington, vice-president; and W. F. Harris, Puyallup, Wash., secretary-treasurer.

Qualified veterinarians desiring charter fellowship status in the college must have applied for such fellowship by Dec. 31, 1958. Other qualified veterinarians seeking fellowship or associate fellowship status may make application to the office of the secretary-treasurer of the college.

s/W. F. HARRIS, *Secretary-Treasurer.*

### Coleman "Animalport" Dedicated at New York's International Airport

The new Sydney H. Coleman "animalport" of the American S. P. C. A. at the New York International Airport was dedicated on Jan. 29, 1958. This shelter, the first in the United States to be built exclusively to care for the needs of animal air travelers, is located in the heart of the cargo center at the airport. Mr. Coleman, for whom the animalport is named, was executive vice-president of the A. S. P. C. A. from 1931 until his retirement in 1952.

The animalport's facilities include a well-equipped veterinary clinic, 40 individual tiled kennels for dogs and cats, 11 stalls for horses or other large animals, isolation cages for sick or in-



Stable, at the Sydney H. Coleman Animalport, with adjoining outdoor paddock, has 11 large horse stalls which can be converted into box stalls.

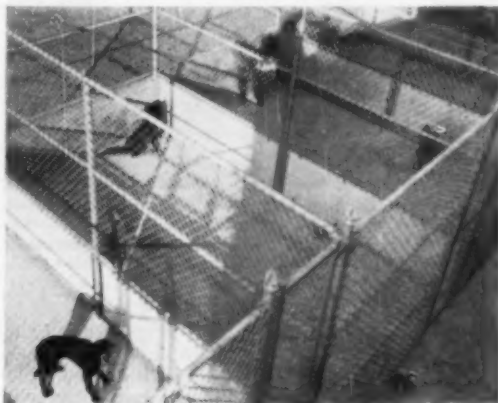
jured animals, and temperature-controlled cages for tropical birds and animals.



Small animal and bird rooms are provided with temperature controls to suit needs of any animal.

jured animals, and temperature-controlled cages for tropical birds and animals.

The animalport is open 24 hours a day. Animals will be picked up and delivered within a 50-mile



Outdoor exercise runs for dogs and other small animals provide exercise after confinement in small crates while in flight.

The Sydney H. Coleman Animalport of the American S.P.C.A. at the International Airport in New York City. More than 100,000 animals of all types arrive at the airport yearly from all over the world.





### "Noah's Ark" to Return to the Air

Jack Webb's "Noah's Ark" television series about veterinarians and the animals they treat will return to television on Sunday, May 25, 1958, at 7 p.m. on NBC, coast to coast.

Nearly 35,000 letters of protest were received from the general public as a result of the program leaving the air last year. The letters were



Paul Burke (left) and Victor Rodman as the veterinarians in "Noah's Ark," with "George," the dog who has had surgery for the installation of the prosthetic hip joint, developed by Colonel H. A. Gorman, V.C., U.S. Air Force.

from children, parents, P.T.A. groups, humane societies, M.D.'s as well as veterinarians, business and professional groups including many educators, and thousands of neighbors and clients of veterinarians.

The show, again to be seen in color, will, for the most part during the summer, be re-runs or episodes previously seen. The reason for this is that the program must prove itself by earning a sufficient rating in its new time period to tempt a sponsor for the fall season. When this happens, the producers plan to incorporate many of the suggestions made by veterinarians and others, in order to make the new shows even better than before.

### Gordon Research Conferences

The Gordon Research Conferences for 1958 will be held from June 9 to Aug. 29, 1958, at Colby Junior College, New London, N. H.; New Hamp-

ton School, New Hampton, N. H.; and Kimball Union Academy, Meriden, N. H.

The conferences, established to stimulate research in universities, research foundations, and industrial laboratories, are informal lectures and discussion groups. The purpose of the program is to bring workers up to date on the latest developments in the fields of chemistry, and to analyze the significance of these developments.

Each applicant should state his institution or company and the type of work in which he is interested. Attendance is limited to 100. Requests for attendance at the conferences, or for any additional information, should be addressed to W. George Parks, director, Department of Chemistry, University of Rhode Island, Kingston, R. I. From June 9 to Aug. 29, 1958, mail should be addressed to Colby Junior College, New London, N. H.

The complete program of the conferences was published in the Feb. 28, 1958, issue of *Science*.

### National Institute of Animal Agriculture to Discuss Impact of Integration

The theme of the eighth annual meeting of the National Institute of Animal Agriculture, to be held at Purdue University, April 20-22, 1958, will be "Impact of Integration on Animal Agriculture." In announcing the program, Dean Harry J. Reed, chairman of the NIAA executive committee, called attention to the changes taking place in agriculture, particularly the industrial integration developments in production and marketing of broilers and the new developments in pork production and cattle-feeding to produce meat according to definite market specifications.

The program of this year's institute is to bring out all aspects of integration, both vertical and horizontal.

## AMONG THE STATES AND PROVINCES

### Alberta

**Provincial Association Publication Has "New Look."**—With the January, 1958 (No. 1) issue, *The Veterinary News*, "published in the interests of the veterinary profession" by the Alberta V.M.A., takes on a new look. It is printed on slick paper, the same size as most other veterinary periodicals and is published by an editorial board comprising Drs. E. R. Whenham, K. S. Penniford, H. C. Carlson, and R. Walton. Dr. Whenham is serving as editor.

The president of the Alberta V.M.A. is Dr. C. H. Bigland of Edmonton; the secretary is Dr. Ross Walton of Red Deer.

## California

**Orange Belt V.M.A. Elects officers.**—At their meeting on Jan. 14, 1958, the Orange Belt Veterinary Medical Association elected the following officers: Drs. C. A. Maeda, president; R. F. Lapham, vice-president; and R. Y. Foos, secretary-treasurer.

s/ROBERT Y. FOOS, *Secretary-Treasurer.*

## Connecticut

**State Association.**—The annual meeting of the Connecticut Veterinary Medical Association was held in the Hotel Bond in Hartford on Feb. 5, 1958.

Mr. L. F. Beck, of the Connecticut General Life Insurance Company, spoke on estate planning, and Mr. L. F. Fortner, of the National Cylinder Gas Company, Chicago, gave a live demonstration on the use of resuscitation and anesthesia apparatus.

The following officers were elected for the coming year: Drs. C. E. Guthrie, Wilton, president; R. V. Westerberg, Elmwood, first vice-president; H. C. Leonard, Cheshire, second vice-president; E. H. Patchen, Milford, secretary-treasurer.

Dr. R. A. Rand, Stamford, was elected a member of the executive board.

s/E. H. PATCHEN, *Executive Secretary.*

## Illinois

### Seventy-Sixth Annual Illinois Meeting.

The seventy-sixth annual meeting of the Illinois V.M.A. was held Feb. 16-19, 1958, at the LaSalle Hotel in Chicago. At the opening session, Dr. J. M. Gillespie, president of the Chicago Association, welcomed the conference, Mrs. C. H. Armstrong, president of the Illinois Women's Auxiliary, brought greetings from the Auxiliary, President P. T. Gambrel delivered the presidential address, and Dr. W. W. Armistead, president of the AVMA, spoke on the activities of the AVMA.

Dr. C. D. Van Houweling of the ARS, Washington, D.C., discussed the veterinarian's responsibility to the livestock owner, and Dr. C. A. Brandly, dean of the College of Veterinary Medicine, University of Illinois, spoke on veterinary education in Illinois.

At the sections on small animal practice, Dr. G. S. Trevino, College Station, Texas, discussed "Canine Dermatitis;" Dr. R. L. Rudy told of the Gorman hip prosthesis, and Dr. R. A. Sautter discussed some aspects of rabies vaccine.

Dr. Werner Tuteur (M.D.), Chicago, presented an illustrated talk on "Tranquilizing Drugs in Human and Veterinary Medicine," followed by a talk, by Mr. Joseph Kelly of American Air Lines, about shipping live animals by air. Dr. C. L. McGinnis, Peoria, spoke on veterinary economics, and Dr. D. Maksic, Urbana, gave an illustrated talk on the diag-

nosis and differential diagnosis of injuries of the hip joint in the dog. Mr. L. A. Brondy, director of the Laboratory School and chief technician of the Pediatric Laboratory, Cook County Hospital, Chicago, gave his views on what a laboratory in a small animal hospital should be.

Among the speakers on large animal medicine and surgery were Drs. A. G. Danks, Ithaca, N.Y., who gave an illustrated talk on surgical diseases of cattle; M. Erdheim, Chicago, spoke on newer concepts in cattle nutrition, and infertility in cattle was discussed by Dr. E. A. Woelffer of Oconomowoc, Wis.

A panel discussion on dairy cattle diseases was moderated by Dr. H. P. Wessels, of Geneva, Ill., and the participants were Drs. R. O. Anderson, Elkhorn, Wis., A. G. Danks, Ithaca, N.Y., M. Erdheim, Chicago, and E. A. Woelffer, Oconomowoc, Wis.

A panel discussion on swine diseases was participated in by Drs. H. C. H. Kernkamp, St. Paul, Minn., W. H. Beckenhauer, Lincoln, Neb., S. S. Bjornson, West Fargo, N. Dak., and L. T. Railsback, Ellsworth, Minn.

Those participating in the program on sanitary science were: Drs. L. E. Hanson, Urbana; R. E. Omohundra, ARS, Washington, D.C.; F. C. Mau, Union Stockyards, Chicago; G. W. Hess, Illinois Department of Agriculture, Springfield; Asa Winter, ARS, Lansing, Mich.; N. L. Meyer, ARS, Springfield; A. K. Merriman, Illinois Department of Agriculture, Springfield.

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**Regional Rabies Conference.**—The Great Lakes Regional Conference convened immediately following the closing session of the Illinois State V.M.A. seventy-sixth annual meeting. Both meetings were held at the LaSalle Hotel in Chicago. Over 130 attended the conference—veterinarians, physicians, public health officers, wildlife conservationists, officials of the Illinois Department of Agriculture, and regulatory police officers.

Dr. E. C. Khuen, Cook County rabies inspector, was general chairman of the conference. The speakers included Dr. Roland P. Cross (M.D.), director of the Illinois Department of Public Health, Springfield, who gave the welcoming address, followed by Drs. E. S. Tierkel, Atlanta, Ga., who spoke on "Rabies Control Procedures and Current Status of Rabies in the United States;" Wilford O. Nelson, Jr., Minneapolis, Minn.,—"Rabies in Wildlife."

"Human Antirabies Prophylaxis" was discussed by Drs. H. S. Shaughnessy, Springfield; John Fox, New Orleans, La.; and Karl Habel, Bethesda, Md.

A delegate from each participating state reported on the status of rabies and the progress of control activities in the fields of public health, livestock disease control, and wildlife

conservation, as related to his state. The states participating in the conference were Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin.

An interview with Dr. Tierkel by Mr. Norman Kraeft, Farm Service Director of WGN-TV, was tape-recorded and broadcast over WGN on February 20.

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**Chicago Association.**—The February meeting of the Chicago V.M.A. was held on Tuesday, Feb. 11, 1958, at 8:30 p. m. in the Lincoln Room of the LaSalle Hotel.

Dr. R. W. Worley, practitioner, South Bend, Ind., presented a paper on the management of a practice.

s/C. H. ARMSTRONG, *Secretary.*

### Indiana

**Annual Meeting of the Indiana Women's Auxiliary.**—The fourteenth annual meeting of the Women's Auxiliary to the Indiana Veterinary Association convened January 15-17, 1958,



The new 1958 officers of the Indiana Auxiliary are (standing, left to right)—Mrs. R. W. Worley, South Bend, president; Mrs. Howard Class, Indianapolis, second vice-president; Mrs. Harry Koeppen, Bloomington, treasurer; Mrs. W. E. Welbourn, Winchester, first vice-president; (seated) Mrs. H. J. Magrane, Jr., South Bend.

at the Severin Hotel in Indianapolis. Mrs. C. C. Donelson, president, presided. The Women's Auxiliary to the AVMA was well represented, with Mrs. Frank Booth, secretary, and Mrs. J. J. Fishler, chairman of the Public Relations Media Committee, present. We are proud to call them "ours".

Mrs. Booth and Mrs. Fishler gave interesting reports on what the AVMA Auxiliary has done during the past year, plus their plans for the future. Mrs. Lowell Hinchman, our 1956 president who was a delegate to the AVMA convention in 1957, presented an interesting report

of the many varied business and social affairs at Cleveland. It was voted to contribute both to the Student Loan Fund and the AVMA Research Fund.

New officers were elected for 1958 (see cut).

The social events enjoyed by the group included a tea, square dance, luncheon, banquet, and dance.

### Kansas

**Rabies Symposium to Be Held in Kansas City, April 18.**—An interprofessional Symposium on Rabies will be held in the Student Union building, Kansas State University School of Medicine, on Friday, April 18, 1958. It is jointly sponsored by the Kansas City V.M.A., the department of Health, Education, and Welfare, U.S.P.H.S., and the School of Medicine, in cooperation with the Missouri and Kansas V.M.A.s, the Kansas, Jackson County, and Wyandotte County Medical Societies, and *Veterinary Medicine.*

The faculty of the symposium comprises medical and veterinary authorities from federal, state and local public health services, research institutions and private practice.

### Louisiana

Dr. Alexander Sas-Jaworsky (seated, right), veterinarian of Abbeville, La., is shown with the officers of the New York City V.M.A. at their February meeting, held at the New York Academy of Science.



Seated (left to right) are Dr. Charles S. Fanslau, vice-president; Mrs. Sas-Jaworsky; and Dr. Sas-Jaworsky. Standing are Drs. I. Zimmerman (left), president, and C. E. De Camp, secretary.

On the February 4 "\$64,000" TV show, when Dr. Sas-Jaworsky won \$80,000 in the category of American history, a group of veterinarians were his guests at the studio. On February 18, he raised his winnings to \$128,000.

### Maryland

**Dr. Leo J. Cook Retires.**—Dr. Leo J. Cook, inspector in charge of federal meat inspection in Baltimore, Md., retired on Feb. 28, 1958, after nearly 40 years of service.

Dr. Cook, born in Baltimore in 1888, received his D.V.M. degree from the Cincinnati Veterinary College (Ohio) in 1919.



Dr. Leo J. Cook

Initially appointed as a veterinary inspector in Cincinnati, he assisted in the eradication of an outbreak of foot-and-mouth disease in California in 1924 and, in 1925, helped in the eradication of European fowlpest in the Middle-west and, again, served on foot-and-mouth eradication in Texas.

Serving as veterinary inspector in Baltimore, veterinary supervisor in Chicago, and acting inspector in charge in Milwaukee, Wis., Dr. Cook was transferred back to Chicago as assistant inspector in charge in 1945. In November, 1949, he returned to Baltimore as inspector in charge.

He is the recipient of an award for superior accomplishment and a certificate of merit for the performance of duties substantially exceeding the requirements of the position in 1948. He and Mrs. Cook are living in Chicago.

### Missouri

**Women's Auxiliary.**—The Women's Auxiliary to the Missouri V.M.A. met in conjunction with the Missouri association at the Hotel Continental in Kansas City on Feb. 9-11, 1958.

The auxiliary meeting began with a brunch on February 10 in the Roof Garden of the Hotel Continental, concluding with a business meeting after the brunch.

### New Jersey

**Metropolitan Association.**—The Metropolitan New Jersey V.M.A. met March 19, 1958,

at the Academy of Medicine Building, Newark, N. J.

The program began at 8:30 p.m. with a film on canine clinical cases. Dr. Robert L. Ticehurst, Red Bank, discussed contracts for practitioners, and Dr. William H. Ivens, Jr., Ardmore, Pa., spoke on the "Emphasis on Non-veterinary Services."

Dr. Louis A. Corwin, practitioner of Jamaica, N.Y., presented his reflections and highlights of 30 years of practice.

s/M. S. ARLEIN, Secretary.

### New York

**State Racing Commission Urges Sleeping Sickness Vaccination.**—Early in February, the New York State Racing Commission sent a circular to all Thoroughbred owners and trainers applying for licenses to race in New York, recommending that their horses be vaccinated against equine encephalomyelitis, such vaccination to be completed at least 21 days prior to entry of their horses into the state. Two injections of bivalent (Eastern and Western strains) are recommended.

The Commission, in 1957, considered making the vaccination mandatory but, after consulting with horsemen and track operators, decided to make a "strong recommendation" instead. It is also pointed out that, should E.E. occur in New York, close quarantine of all horses which have not been inoculated will be instituted, and an embargo set up against entrance of horses until proof is furnished that they have been properly vaccinated at least 21 days prior to shipment to New York.—*The Blood Horse*, Feb. 8, 1958, p. 349.

• • •

**Determination of Semen Quality.**—Dr. George Blackledge, graduate student at New York State Veterinary College, Cornell University, Ithaca, N.Y., will study semen quality, sperm production, and libido of dogs under two systems of management and nutrition.

Under a \$4,000 grant from the Mark L. Morris Animal Foundation of Denver, Colo., Dr. Blackledge will also study the ability of dogs under two systems to withstand frequent collection.

The project is under the direction of Dr. R. W. Kirk of the Department of Small Animal Medicine, New York State Veterinary College, and Dr. Robert H. Foote of the animal husbandry department.

### North Dakota

**Dr. Foss Named "Man of the Year" by the Saddle and Sirlain Club.**—The Saddle and Sirlain Club of the North Dakota Agricultural College selected Dr. O. G. Foss (KCV '12), 73, of Christine, as the "Man of the Year."

Dr. Foss was honored at the Hall of Fame banquet on Feb. 14, 1958. His portrait will be

hung in the Saddle and Sirloin Hall of Fame in Sheppard Arena at the agricultural college. He is a past-president of the North Dakota V.M.A.

Each year, the members of the Saddle and Sirloin Club add to the Hall of Fame a man whom they feel has made outstanding contributions to the agriculture of the state.

Although now handicapped by rheumatism, Dr. Foss is and has been on call 24 hours a day, seven days a week, since first establishing his practice in Christine in 1912, 45 years ago.

## Oregon

**State Association.**—The Oregon State V.M.A. met in Portland on Jan. 31 and Feb. 1, 1958.

A resolution was passed urging state and federal agencies to pay veterinarians who work in a group, as a group, and not individually, for the regulatory work performed. Also at this session, life membership in the association was granted to Dr. H. W. Riley of La Grande.

Drs. W. W. Armistead, dean, College of Veterinary Medicine, Michigan State University, and president of the AVMA; R. Jensen, dean, College of Veterinary Medicine, Colorado State University; G. D. Pettit, School of Veterinary Medicine, University of California; D. A. Fisher, M. D., Medical School, University of Oregon, were among the principal speakers on the program.

The officers elected for the ensuing year are: Drs. W. H. Steele, Portland, president; Dallen Jones, Roseburg, president-elect; O. H. Muth, Department of Veterinary Medicine, Oregon State College, Corvallis, secretary-treasurer.

The next regular meeting of the association will be held on Sept. 19-20, 1958, in Roseburg, Ore.

s/EDWARD L. HOLDEN, *Resident-Secretary*.

## Wisconsin

**Wisconsin V.M.A. Meeting.**—The forty-second annual meeting of the Wisconsin Veterinary Medical Association met at the Pfister Hotel in Milwaukee on Feb. 10-12, 1958.

The first session featured a business practice panel, moderated by Dr. L. H. Winn, practitioner of Whitewater. The practitioners participating in the panel were Drs. A. C. Kelman, Waterloo; E. A. Krueger, Evansville; W. L. Lynn, Franksville; and R. L. Oettiker, Marshfield.

The speakers and their subjects for the three-day meeting included: Drs. W. B. Kingrey, Ames, Iowa—Bovine Surgery and Swine Surgery; Kenneth Lloyd, West Bend—Teat Surgery on the Farm; Mr. Roberts M. Witt, Minneapolis, Minn.—The Veterinarian and His Investments; Drs. George Ott, Grafton—Are Sensitivity Tests Useful in Practice? C. C. Ellis, Madison—Vaccinating Poultry.

Drs. Earl M. Baldwin, Jr.—Clostridial Enterotoxemia; G. R. Hartsough, Pittsville—

Common Mink Diseases; W. W. Armistead, East Lansing, Mich.—Tips on Practice Promotion; Arthur A. Case, Columbia, Mo.—Nitrate Poisonings, and Sheep Practice; Carl Olson, Jr., Madison—What University Research Is Doing for You; C. K. Mingle, Washington, D.C.—Brucellosis Eradication, Past, Present, and Future.

In the small animal session, Dr. Norman L. McBride, Pasadena, Calif., showed slides on "A Trip Through the Hospital" and also illustrated surgical techniques; Dr. Alan Bachrach, Philadelphia, Pa., spoke on "Common Pulmonary and Digestive Disorders of Caged Birds." A panel on distemper was moderated by Dr. F. L. Gentile, Milwaukee. The participants were Drs. C. J. Gurneau, Kenosha; G. J. Marold, Milwaukee; Paul Neff, Sheboygan; and R. H. Romaker, Madison.

At the annual banquet, Dr. W. W. Armistead, president of the AVMA, spoke on the subject "You Are the AVMA," and Dr. Bachrach of Philadelphia provided entertainment with his "humorous prestidigitation" lecture.

## Wyoming

**Practicing Veterinarians Volunteer to Work in Brucellosis-Eradication Program.**—To facilitate the removal of lay bleeders in Wyoming, a number of practicing veterinarians volunteered to spend a week in Fremont County to overcome an emergency situation that had developed in the area with the brucellosis-eradication program.

To date, Drs. O. E. Bunnell, V. J. Humphreys, R. O. Dull, W. L. Rollins, J. W. Siemens, W. R. Lee, and J. E. Ketcham have left their practices to help. Dr. R. C. Knowles and Dean Price of the Wyoming ARS and Dr. Harold Breen of the Wyoming State Veterinary Laboratory have also worked in Fremont County.

s/J. F. RYFF, *Secretary*,  
Wyoming V.M.A.

## FOREIGN NEWS

### British West Indies or Trinidad

**Third Veterinary Convention Planned in Trinidad.**—The British Caribbean Veterinary Association is sponsoring another veterinary convention in Trinidad, from May 25-31, 1958. It is the third of its kind, the first having been held in Trinidad in 1954, the second in Jamaica 1956.

The association plans to maintain the same high standard of program that characterized the first two conventions, including prominent guest speakers from the United Kingdom, Canada, and the States.

Visitors from overseas will be welcome. Further information may be had by writing to



Dr. S. P. Bennett, president, British Caribbean Veterinary Association, 24, Queen's Park West, Port of Spain, Trinidad, B.W.I.

S/S. P. BENNETT.

## U. S. GOVERNMENT

**Veterinary Personnel Changes.**—The following changes in the force of veterinarians in the U.S.D.A. are reported as of Jan. 27, Feb. 3, Feb. 6, Feb. 10, and Feb. 11, 1958.

### TRANSFERS

Eldon C. Barclay from Champlain, N.Y., to Indianapolis, Ind.

Gerald Diamant from Albuquerque, N.M., to Sebring, Fla.

Dale C. Gigstad from St. Joseph, Mo., to Topeka, Kan.  
Warren B. Ross from Fort Worth, Texas, to Jacksonville, Fla.

Harold A. Waters from New York, to Washington, D.C.  
Donald L. Williams from Baltimore, Md., to Sebring, Fla.

### RETIREMENTS

Charles R. Adams, Quincy, Fla.  
Charles E. Brown, Boston, Mass.  
John L. Campbell, Chicago, Ill.  
Albion C. Farmer, Newport, Vt.  
Calloway C. Middleton, Montgomery, Ala.  
William C. Nye, Sweetgrass, Mont.  
Don B. Strickler, Houston, Texas.

## STATE BOARD EXAMINATIONS

**BRITISH COLUMBIA**—June and November, 1958 (usually end of the second week); Vancouver. G. L. Stovell, British Columbia Veterinary Association, 3187 West 43rd Ave., Vancouver 13, secretary.

**DISTRICT OF COLUMBIA**—June 26, 1958, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D.C. A. F. McEwan, secretary, 1740 Massachusetts Ave., N.W., Washington 6, D.C.

**INDIANA**—July 8-9, 1958, House of Representatives, State House, Indianapolis, Ind. Joe W. Green, secretary, Room 413, 611 N. Park Ave., Indianapolis 4, Ind.

**KANSAS**—May 27-29, 1958, Dykstra Veterinary Hospital, Kansas State College, Manhattan, Kan. Applications must be filed by May 1, 1958. Chas. W. Bower, secretary, 1128 Kansas Ave., Topeka, Kan.

**KENTUCKY**—July 28, 1958, University of Kentucky, Lexington. J. K. Bushnell, secretary, 229 Houston, Paris, Ky.

**MAINE**—July 7-8, 1958, State House, Augusta, Maine. E. C. Moore, secretary, Turner Center, Maine.

**MARYLAND**—June 18, 1958, written examination; June 19, 1958, practical examination; College park, Md. Harold S. Gober, secretary, 5400 Park Heights Ave., Baltimore 15, Md.

**MICHIGAN**—June 9-10, 1958, Lansing, Mich. Written, practical, and oral examinations. Applications must be on file at least 15 days before examination, accompanied by \$25 fee. Address: State Veterinarian, 641 Lewis Cass Bldg., Lansing 13, Mich.

**MISSISSIPPI**—June 17, 1958, Jackson, Miss. Wm. L. Gates, secretary, Box 417, Clarksdale, Miss.

**NEW YORK**—June 18, 19, 1958, practical examination, Ithaca; June 24-27, 1958, written examination, New York City, Albany, Syracuse, Buffalo, and Rochester. John W. Paige, chief, Bureau of Examinations and Registrations, 23 S. Pearl St., Albany, N.Y.

**NORTH CAROLINA**—June 23-25, 1958, Hotel Washington Duke, Durham, N. Car. James I. Cornwell, secretary, 65 Beverly Road, Beverly Hills, Asheville, N. Car.

**NORTH DAKOTA**—April 9-10, 1958, Fargo. M. C. Hawn, secretary-treasurer, 1407 13 St. No., Fargo, N. Dak.

**OKLAHOMA**—May 20-22, 1958, College of Veterinary Medicine, Oklahoma State University, Stillwater. Dr. Robert S. Todd, secretary-treasurer, Oklahoma Board of Veterinary Medical Examiners, 310 State Capitol, Oklahoma City, Okla.

**ONTARIO**—June 9-11, 1958, Ontario Veterinary College, Guelph, Ont., G. A. Edge, secretary, Box 37, Postal Station F, Toronto 5, Ont.

**RHODE ISLAND**—July 8-9, 1958, 505 Veterans' Memorial Bldg., Providence, R.I. T. J. Grennan, Jr., secretary, Box 31, Allenton, R. I.

**SASKATCHEWAN**—June 17, 1958, University of Saskatchewan, Saskatoon, Sask. Fred M. Clark, secretary, 619 9th Ave., Saskatoon, Sask.

**TENNESSEE**—June 23-24, 1958, Nashville, Tenn. W. O. Greene, secretary, 4119 Hillsboro Road, Nashville, Tenn.

**TEXAS**—May 26-28, 1958, Texas A & M College, College Station, Texas. T. D. Weaver, executive secretary, Texas State Board Veterinary Medical Examiners, 207 Capital National Bank Bldg., Austin 16, Texas.

**UTAH**—June 19-20, 1958, State Capitol Building, Salt Lake City, Utah. Obtain Application from Mr. Frank Lees, State Capitol Bldg., Salt Lake City. Dr. Wayne Binns, Chairman, Utah State Veterinary Board of Examiners, Utah State University, Logan, Utah.

**VIRGINIA**—June 26, 1958, Capitol Building, Richmond. Va. T. N. Burton, secretary, Department of Professional and Occupational Registration, P. O. Box 1-X, Richmond, Va.

**WASHINGTON**—May 30-June 1, 1958, Pullman, Wash. Thomas A. Carter, Administrator, Professional Division, State Department of Licenses, Olympia, Wash.

## DEATHS

Star indicates member of AVMA

★**William H. Ahlers** (ISC '33), 46, Dubuque, Iowa, died Jan. 23, 1958. Dr. Ahlers had served with the U.S. BAI (ARS) and had practiced in Dubuque for several years. He was a member of the Iowa State and Eastern Iowa V.M.A.'s and of the AVMA. He is survived by his widow, three daughters, and a son.

**J. Frederick Ast** (SF '07), 81, Menlo Park, Calif., died Jan. 28, 1958, after he had been struck by an automobile as he was leaving a veterinary convention. Dr. Ast was a meat inspector.

**Alfred M. Brolling** (KCV '16), 65, Moorhead, Minn., died Jan. 19, 1958. Dr. Brolling served with the Bureau of Animal Industry,

first in the animal disease control division in North Dakota until 1942 and then as meat inspector at West Fargo, N. Dak. He had been a member of the AVMA. His survivors include his widow, a son, and a daughter.

**Vernie H. Brown** (IND '11), 67, Delphi, Ind., died Jan. 5, 1958. Dr. Brown is survived by his widow.

**Peter Burschinger** (CVC '14), 74, Coleman, Wis., died Jan. 2, 1958. Dr. Burschinger was a general practitioner.

**Forest Davis** (CVC '12), 79, Moulton, Iowa, died Jan. 24, 1958. Dr. Davis served as veterinarian in Moulton from 1912 to 1936, and as state representative from Appanoose County from 1932 through 1934. In 1936, he was appointed postmaster at Moulton and held that position until his retirement in 1952. His widow survives.

★**William K. Denison** (CVC '12), 64, Scottsville, Va., died Jan. 29, 1958. Dr. Denison had practiced in Oklahoma City, Okla., until his retirement a few years ago. He was a member of the Oklahoma V.M.A. and of the AVMA. Dr. Denison is survived by his widow, two sons, and two daughters.

**David C. Houser** (KCV '08), Jasper, Mo., died Feb. 9, 1958. Dr. Houser was a general practitioner.

**R. M. Johnston**, 73, Apple Springs, Texas, died in January, 1958. Dr. Johnston had served as veterinarian in Trinity and Houston counties for 50 years. He is survived by his widow, three sons, and two daughters.

**Walter H. Lee** (SF '13), 68, Powell, Wyo., died Dec. 18, 1957. Dr. Lee had, in recent years, turned over most of his practice to his nephew, Dr. W. R. Lee, because of failing health. Dr. Lee had been a member of the AVMA and had served as president of the Wyoming V.M.A. of which he was made a life member in 1955.

★**O. Richard Menig** (WSC '43), 38, Four Lakes, Wash., died Dec. 5, 1957. Dr. Menig, a general practitioner, was a member of the Washington State V.M.A. and of the AVMA. His widow survives.

**William R. Michael** (CVC '01), 82, Highland, Ill., died in January, 1952. Dr. Michael had been a member of the Illinois V.M.A. and of the AVMA.

★**Jonathan P. Miller** (STJ '20), 66, Boonville, Mo., died on Feb. 13, 1958. Dr. Miller retired in 1951 after 30 years of practice. He was a past-president of the Missouri V.M.A.

and had served on the Boonville City Council. He was admitted to the AVMA in 1925.

**Edgar M. Neiswander** (OSU '23), 63, Ada, Ohio, died Jan. 22, 1958. Dr. Neiswander had practiced in Ada for 33 years. He is survived by his widow, a son, a daughter, and three grandchildren.

**Burie E. Parker**, 62, Mayfield, Ky., died Dec. 7, 1957. Dr. Parker had practiced in Mayfield for 30 years. His son and three grandchildren survive.

**Vernon S. Peterson** (ISC '42), 39, Colman, S. Dak., died Dec. 17, 1957. Dr. Peterson had been a member of the AVMA. He is survived by his widow and a son.

**Ross M. Phillips** (KCV '12), 78, Bertrand, Neb., died July 18, 1957. Dr. Phillips had served in World War I and as a poultry inspector for the U.S.D.A. His widow survives.

**Abraham N. Shifrin** (OSU '12), 71, Cleveland Heights, Ohio, died Jan. 1, 1958. Dr. Shifrin served as meat inspector for the U.S.D.A. from 1940 to 1955. His survivors include his widow, a son, three daughters, and seven grandchildren.

**Arthur E. Smedley** (CVC '06), 79, Tallula, Ill., died Jan. 26, 1958. Dr. Smedley had practiced in Tallula for 50 years. He retired in 1955. His widow survives.

★**William G. Stevenson** (ONT '37), 44, Guelph, Ont., died suddenly following a heart attack on Feb. 1, 1958, while traveling in the states on business. Dr. Stevenson was born at Forester's Falls, Ont., in 1914 and shortly after graduation from Ontario Veterinary College became associated with Ayerst, McKenna and Harrison, Ltd., pharmaceutical manufacturers in Montreal.

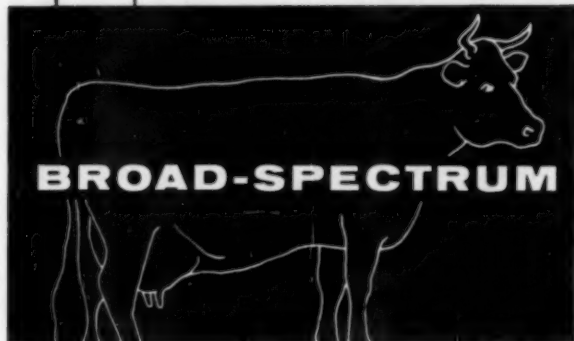
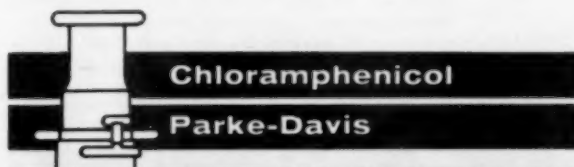
At the time of his death, he was a senior member of the firm of Stevenson, Turner and Boyce, Ltd., of Guelph, producers and distributors of ethical pharmaceutical products.

Dr. Stevenson joined the AVMA in 1941 and was a member of the Committee on Therapeutic Agents.

**John D. Thrower** (OSU '04), 76, Sioux City, Iowa, died Jan. 11, 1958. Dr. Thrower had for many years been engaged in processing and marketing biological products and had served as production manager for Allied Laboratories in Sioux City. His survivors include his widow, two daughters, and a son.

★**Charles T. Whitney** (COR '38), 41, Burlington, Vt., died July 15, 1957, of coronary thrombosis. Dr. Whitney, a general practitioner, was a member of the Vermont and New England V.M.A.'s and of the AVMA.

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## Award Nominations Invited

President W. W. Armistead, chairman *ex officio* of the AVMA Committee on Awards, announces that members are invited to submit nominations for the awards administered by the Association which are to be given in 1958.

This Committee selects the recipients for three awards: the Twelfth International Veterinary Congress Prize, the AVMA Award, and the Borden Award.

A fourth award, the Humane Act Award, is also administered by the Association, but nominations for it are handled, and recipients selected, by the Special Committee on Humane Act Award (see below).

The Practitioner Research Award, established and first awarded in 1956, is administered by the AVMA Research Council.

### AVMA Award

Established in 1931, this award was not activated until 1943. It consists of a medal and certificate and is bestowed in recognition of "meritorious service to the membership." There have been nine recipients to date: Drs. J. R. Mohler, L. A. Merillat, A. H. Quin, A. A. Husman, G. W. Gillie, N. J. Miller, C. W. Bower, Col. Robert J. Foster, and Dr. O. H. Person.

### Twelfth International Veterinary Congress Prize

Established in 1936, this award consists of a cash prize of \$125 and a certificate. It is bestowed in recognition of "outstanding service by a member of the AVMA to veterinary science and the veterinary profession." To date, there have been 21 recipients: Drs. D. H. Udall, G. H. Hart, J. R. Mohler, I. F. Huddleson, A. Eichhorn, R. A. Kelsner, Otto Stader, D. F. Luckey, L. A. Merillat, T. H. Ferguson, W. J. Butler, A. E. Cameron, G. Dikmans, N. S. Mayo, R. S. Sugg, C. E. Cotton, L. Van Es, F. W. Schofield, B. T. Simms, Hadleigh Marsh, and Edward Records.

### Borden Award and Medal

Established in 1944, the Borden Award consists of \$1,000 in cash and a gold medal. It is bestowed in recognition of "outstanding research contributing to dairy cattle disease control." The conditions specified by the donor require that the recipient (not necessarily a veterinarian) shall have published the results of his work in recognized scientific journals and that a statement shall be furnished the Borden Company Foundation setting forth the qualifications of the recipient, together with a pertinent bibliography of his published investigations.

There have been 14 recipients of the Borden Award: Drs. I. F. Huddleson, W. L. Boyd, W. E. Cotton, J. Traum, A. F. Schalk, R. R. Birch, J. Farquharson, L. A. Klein, R. B. Little, G. H. Hart,

M. G. Fincher, H. E. Kingman, Sr., H. L. Gilman, and S. H. McNutt.

### Deadline and Rules for Nominations

Nominations for any of the foregoing awards should be addressed by AVMA members to: Committee on Awards, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., and must be received not later than *June 1, 1958*.

Each nomination should contain *specific* details and comprise a brief of the nominee's accomplishments and qualifications for the award in question. The nomination must also contain brief biographical data, including an account of the nominee's professional background and experience. *Eight copies* of the data and brief must be furnished.

The Committee on Awards will review the various nominations and supporting data and select recipients for this year's awards; the awards will be presented to the recipients at the opening general session of the AVMA convention in Philadelphia, August 18-21.

The Committee on Awards is *ex officio* and comprises Drs. W. W. Armistead, chairman (as president of the AVMA), R. E. Rebrassier (as president-elect); L. M. Hutchings (as chairman of the Executive Board); K. F. Wells (as veterinary director-general of Canada); W. A. Hagan (as AVMA representative to the Division of Medical Sciences, National Research Council); E. W. Young (as chief of the Army Veterinary Corps); and M. R. Clarkson (as deputy administrator, Agricultural Research Service, U.S.D.A.).

### Gaines Award

Another award, the Gaines Award, sponsored by the Gaines Dog Research Center, is also administered by the AVMA. Established in 1956 and first offered in 1957, there was no recipient last year. It consists of a gold medal and \$1,000 in cash.

**Basis.**—The award will go to that veterinarian whose work (within the preceding 5 years) in either clinical work or research in the basic sciences is judged to have contributed significantly to the advancement of small animal medicine and surgery.

The work or achievement shall have been published in recognized veterinary periodicals and/or presented at professional meetings.

**Selection.**—By a special *ex officio* committee of the Association consisting of the president, the chairman and secretary of the Section on Small Animals, and the two members of the Research Council representing the fields of Small Animal Medicine and Small Animal Surgery, respectively.

**Nominations.**—May be made by anyone. Each nomination shall include a description of the work done by the veterinarian nominated, a statement of how it has contributed to the advancement of small animal medicine and surgery, a pertinent bibliography of the nominee's published work, if any, and biographical information.

**Deadline and Rules for Nominations.**—Nomina-

**Ninety-Fifth Annual Meeting**  
Philadelphia—August 18-21, 1958

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*... for shortened therapy  
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***single injection convenience*** — Where two separate injections previously were necessary to treat various conditions complicated by stress, METICILLIN alone may be used effectively. Smaller doses of both drugs may be used than when administered separately because the corticoid-antibiotic combination appears to exert a potentiating effect.

*indicated in pulmonary conditions—foot rot—accident cases—pre- and postoperatively in various surgical procedures—as supportive therapy in bacterial infections complicated by stress.*

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tions should be addressed to: Committee on Gaines Award, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., and must be received not later than June 1, 1957.

Eight copies of the data and brief as outlined above must be furnished. The Committee will review the various nominations and select a recipient so that the award can be presented at the opening session of the AVMA convention in Philadelphia, when other award presentations are made.

### Nominations for Humane Act Award

Veterinarians, students in veterinary medicine, and others throughout North America are being asked to submit nominations for the AVMA Humane Act Award given annually to a boy or girl, not over 18 years old, who has performed an outstanding act of kindness to animals.

Deeds on behalf of dogs and cats have predominated in the winning column since the start of the award, in 1944, but the committee in charge of the project emphasizes that kindness to livestock and wild animals is just as acceptable in determining the winner.

Nominations should be sent to the American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., and must be received not later than May 1, 1958.

The winner will be announced at the AVMA Annual convention in Philadelphia in August. The award is a framed certificate describing the act of kindness and a \$100 U. S. Savings Bond.

## STUDENT CHAPTER ACTIVITIES

### Report of Activities of California Chapter.—

During the fall semester at the University of California, the student chapter of the AVMA held the following meetings:

On September 25 the annual smoker was held to introduce the members of the faculty to, and to welcome, the new freshman class.

The guest speaker for the October 2 meeting was Dr. R. T. Hauge who presented an interesting account of some of the problems confronting the practitioner in veterinary medicine. Ninety-five members attended.

On November 6, Mr. Floyd H. Pettit, a lawyer, gave an excellent and informative address on some of the legal aspects of the practice of veterinary medicine. About 125 members attended.

At the December 4 meeting, Robert Smith, chapter delegate to the 1957 national AVMA convention, addressed the group on his trip to Cleveland last summer. Nominations for spring semester offices followed his talk. Attending were 89 members.

The guest speaker for the January 8 meeting

was Lieutenant Hollister, base veterinarian of McClellan Air Force Base, who spoke about his duties and the general role of veterinarians in the Air Force. Following his address, election of new officers was held.

Members to hold office during the spring semester are: Robert H. Smith, president; Theodore S. Haskell, vice-president; Gordon H. Tittmore, president-elect; Dale E. Shaffer, secretary; and Betty J. O'Connor, treasurer. Ninety-three members attended the final meeting.

## APPLICATIONS

### Applicants—Members of Constituent Associations

In accordance with paragraph (e) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with paragraph (c) Section 2, Article X, of the Administrative Bylaws.

GOLPHIN, SAMUEL P., Holly Hill, S. C., D.V.M., Alabama Polytechnic Institute, 1940.

HARKINS, WOODROW W., 5044 Sappho St., Jacksonville, Fla., D.V.M., Alabama Polytechnic Institute, 1937.

HIGH, ARTHUR K., 2007 Frances Place, Monroe, La., D.V.M., Oklahoma State University, 1952.

JAMESON, HENRY E., 5423 Broadway, Galveston, Texas, D.V.M., A. & M. College of Texas, 1945.

POITEVINT, OTTIS L., 1303 East Showell, Bainbridge, Ga., D.V.M., Alabama Polytechnic Institute, 1954.

POWER, FRANK E., 134 N. 10th Street, Reading, Pa., V.M.D., University of Pennsylvania, 1943.

SCHMIDT, HENRY R., Ferry Road, Chalfont, Pa., V.M.D., University of Pennsylvania, 1957.

WURZER, ANDREAS, 380 W. 14th Place, Chicago Heights, Ill., D.V.M., Veterinary College of the University of Munich, 1951.

YOUNG, RAYMOND JACKSON, Colquitt, Ga., D.V.M., Alabama Polytechnic Institute, 1947.

### Applicants — Not Members of Constituent Associations

In accordance with paragraph (e) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and names of his endorsers.

### First Listing

SMITH, RICHARD E.

APD 132, New York, N. Y.

D.V.M., Colorado State University, 1952.

Vouchers: William J. Welch and Rowland W. Rushmore.

(Continued on page 35)



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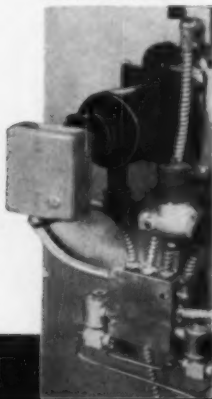
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## COMING MEETINGS

Washington, State College of. Annual Conference of Veterinarians. Pullman, Wash. April 7-9, 1958. W. R. Leader, program chairman.

Western Poultry Disease Workers Conference. Pullman, Wash., April 8, 1958. R. D. Conrad, secretary.

North Central Iowa Veterinary Medical Association. Annual meeting. Warden Hotel, Fort Dodge, Iowa, April 17, 1958. H. Engelbrecht, secretary-treasurer.

National Institute of Animal Agriculture. Eighth annual meeting. Memorial Union Bldg., Purdue University, Lafayette, Ind., April 20-22, 1958. Harry J. Reed, chairman.

American Animal Hospital Association. Silver anniversary meeting. Drake Hotel, Chicago, Ill., April 23-26, 1958. Dr. Wayne H. Riser, secretary.

Oklahoma State University. Oklahoma conference for Veterinarians. College of Veterinary Medicine, Oklahoma State University, Stillwater, May 5-6, 1958. Lester Johnson, Department of Veterinary Medicine and Surgery, chairman.

Eastern Iowa Veterinary Association. Twenty-fourth annual all-day Practitioners' clinic, Hawkeye Downs, Cedar Rapids, Iowa, May 6, 1958. F. E. Brutsman, Traer, Iowa, secretary.

Michigan Veterinary Medical Association. Annual meeting. Grand Hotel, Mackinaw Island, June 2-4, 1958. Charles Coy, Hillsdale, general chairman.

Texas A. & M. College. Eleventh annual Texas conference for veterinarians. School of Veterinary Medicine, Texas A. & M. College, College Station, June 5-6, 1958. R. D. Turk, chairman.

Kansas State College. Annual conference for veterinarians. School of Veterinary Medicine, Kansas State College, Manhattan, June 5-7, 1958. E. E. Leasure, dean.

Montana Veterinary Medical Association. Summer meeting. Missoula, June 16-18, 1958. G. A. Morrison, 316 Central Ave., Great Falls, Mont., secretary.

Georgia-South Carolina Veterinary Medical Association. Joint Meeting, Bon Air Hotel, Augusta, Ga., June 19-21 1958. A.M. Mills, 325 Pinecrest Drive, Athens, Ga., secretary, program committee.

Idaho and Wyoming Veterinary Medical Association. Joint meeting. Jackson Hole, Wyo., June 21-23, 1958. A. P. Schneider, 3025 N. 23rd St., Boise, Idaho, IVMA secretary; J. F. Ryff, P.O. Box 960, Laramie, Wyo., WVMA secretary.

California Veterinary Medical Association. Seventieth annual meeting. San Jose, Calif., June 23-25, 1958. C. H.

Ozarian, 10326 Artesia Blvd., Bellflower, program chairman; Chas. S. Travers, 3004 16th St., San Francisco, executive secretary.

Maritime Veterinary Associations. Joint conference. Mount Allison University, Sackville, N.B., June 24-26, 1958. Dr. J. F. Frank, Box 310, Sackville, N.B., general chairman.

North Carolina State Veterinary Medical Association. Fifty-seventh annual meeting. The Washington Duke Hotel, Durham, June 24-26, 1958. C. J. Lange, 3741 Hi-Point Rd., Greenboro, secretary-treasurer.

Utah Veterinary Medical Association. Annual meeting. Ogden, June 25-26, 1958. J. A. Thomas, P.O. Box 592, Provo, secretary.

Alabama Polytechnic Institute. Annual conference for veterinarians. School of Veterinary Medicine, Auburn, July 20-23, 1958. T. C. Fitzgerald, program chairman.

Canadian Veterinary Medical Association. Tenth annual Convention. Royal Alexandra Hotel, Winnipeg, Manitoba, July 21-23, 1958. Claude Kealey, 1195 Wellington St., Ottawa 3, Ont., executive secretary.

New York State Veterinary Medical Society. Sixty-seventh annual meeting. Concord Hotel, Kiamasha Lake, N. Y., Sept. 4-6, 1958. Miss Joan S. Halat, 803 Varick St., Utica, N. Y., executive secretary.

New England Veterinary Medical Association. Annual meeting. Hotel Wentworth, Portsmouth, N. H., Sept. 21-24, 1958. C. Lawrence Blakely, 100 Longwood Ave., Boston 15, Mass., secretary-treasurer.

Eastern Iowa Veterinary Association. Forty-fifth annual meeting. Hotel Roosevelt, Cedar Rapids, Iowa, Oct. 16-17, 1958. F. E. Brutsman, Traer, Iowa, secretary.



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## APPLICATIONS—Continued from p. 31

### Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative Bylaws to members in good standing of student chapters.

### Second Listing

ADER, JANIS M.  
2640 Alvingroom Ct., Oakland, Calif.  
D.V.M., University of California, 1957.

TIPTON, JOSEPH DIXIE  
1012 North Washington St., Russellville, Ala.  
D.V.M., Alabama Polytechnic Institute, 1957.

RUSSELL, CLARENCE KENNETH  
4310 Mildred St., Bellaire, Texas.  
D.V.M., Alabama Polytechnic Institute, 1957.

## proven results in these diseases of small animals

**CANINE TRACHEOBRONCHITIS (KENNEL COUGH).** In one study of 12 cases, FURADANTIN stopped the cough completely within 3 to 7 days.<sup>1</sup>

**URINARY TRACT INFECTIONS.** Extensively used in human genitourinary tract infections, FURADANTIN has also produced impressive clinical results in the treatment of bacterial nephritis and cystitis of dogs and cats.<sup>2</sup>

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*Preliminary data point to new indications for FURADANTIN.* Various reports describe encouraging results with FURADANTIN in the treatment of vaginitis in the bitch and genitourinary tract infections of mares.<sup>2</sup> Another ar-

ticle concludes that FURADANTIN is an excellent adjunct to surgery in the treatment of prostatic abscess in the dog.<sup>3</sup>

Like all the nitrofurans, FURADANTIN is bactericidal to a wide range of both gram-negative and gram-positive organisms. It is nontoxic to kidneys, liver and blood-forming organs; and development of bacterial resistance is negligible.

Available as orange scored tablets of 10, 50 and 100 mg.; and Oral Suspension, bottle of 60 cc.

REFERENCES: 1. Mosler, J. E.: *Vet. M.* 50:605 (Nov.) 1955.

2. Belloff, G. B.: *Calif. Vet.* 9:27 (Sept.-Oct.) 1956.

3. Pollock, S.: *J. Am. Vet. M. Ass.* 129:274 (Sept.) 1956.

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NITROFURANS—A NEW CLASS OF ANTIMICROBIALS—NEITHER  
ANTHRAZYCLIC NOR SULPHANILAMIDES—PRODUCTS OF CIBA—OSLARD

## What Is Your Diagnosis?

A case history and radiograph depicting a diagnostic problem appear below.

**Make your diagnosis from the picture below—then turn the page ►**



Figure 1

*History.*—A Pug female, 13 months old, had a slight right hindleg lameness of about six weeks' duration. She walked almost normally at times, and at other times carried the leg. The thigh muscles on the affected side were noticeably atrophied. A ventrodorsal radiograph of the pelvis was taken.

**(Diagnosis and findings are reported on next page)**

## Here Is the Diagnosis

(Continued from preceding page)

**Diagnosis.**—Osteochondritis deformans coxae juvenilis (known as Legg Perthe's disease in man) or a reasonable resemblance to this disease, as it occurs in ani-

**Comment.**—The radiograph shows both the appreciable atrophy of the thigh muscles on the right side and disintegration of the femoral head and neck. The acetabulums seem essentially normal for a Pug. We are apparently dealing with aseptic necrosis of the right femoral head and neck which is unilateral and does not involve the acetabulum. This lesion is thought not to be congenital and the prognosis is good.

In this condition, lameness begins sometimes during the growth period, before the epiphyses closes, and healing may be expected to be complete in the Pug by the time it is 12 to 14 months old, although some atrophy of the thigh muscles may still be apparent. However, the leg muscles will again develop, and function will be restored as the pain subsides.

Cage rest is advised if the pain and regional tenderness is acute. After that, the patient should be protected from rough-and-tumble play and excessive jumping. Theoretically, the use of a Schroeder-Thomas splint should be helpful, but we have discontinued the use of this apparatus in this syndrome because of potential injury to the other hip.



Fig. 2—A radiograph (ventrodorsal view) showing osteochondritis deformans coxae juvenilis in the right femur (a), and also atrophy of the thigh muscles on the right side (b).

mals, involving the head and neck of the right femur. There is also atrophy of the muscles of the right thigh.

This case was submitted by the staff of the Angell Memorial Animal Hospital, Boston, Mass.

Our readers are invited to submit histories, radiographs, and diagnoses of interesting cases which are suitable for publication.

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Farmers themselves admit that scouring is responsible for 42 per cent of deaths in young calves.\* They want and need *better anti-scours therapy*. That's just what Stereocide is!

New antimicrobial Sterosan®<sup>1</sup> combined with Neomycin gives a depth to scours treatment not possible with ordinary medications. Xylocaine®, specially formulated, provides dramatic antispasmodic action. *Here's what happens:*

1. You get the fast action you naturally expect from reliable antibiotics, antibacterials, kaolin and electrolyte salts . . .

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**Jensen-Salsbery  
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Kansas City, Missouri



Oklahoma Veterinary Medical Association. Annual meeting. Mayo Hotel, Tulsa, Jan. 25-27, 1959. M. N. Riemschneider, 122 State Capitol Bldg., Oklahoma City, secretary.

### Foreign Meetings

British Caribbean Veterinary Association. Third veterinary convention. Trinidad, B.W.I., May 25-31, 1958. S. P. Bennett, c/o Dept. of Agric., St. Clair, Port of Spain Trinidad, B.W.I., president.

Sixth International Congresses on Tropical Medicine and Malaria. Lisbon, Portugal, Sept. 5-13, 1958. Professor Manuel R. Pinto, Institute of Tropical Medicine, Lisbon, secretary-general. (Membership application forms may be obtained by U.S. veterinarians by writing to the AVMA.)

### Regularly Scheduled Meetings

ALABAMA—Central Alabama Veterinary Association, the first Thursday of each month. Dr. G. W. Jones, Main St., Prattville, Ala., secretary-treasurer.

Jefferson County Veterinary Medical Association, the second Thursday of each month. S. A. Price, 213 N. 15th St., Birmingham, secretary.

Mobile-Baldwin Veterinary Medical Association, the third Tuesday of each month. W. David Gross, 771 Holcombe Ave., Mobile, Ala., secretary.

North Alabama Veterinary Medical Association, the second Thursday of November, January, March, May, July, and September, in Decatur, Ala. Ray A. Ashwander, Decatur, Ala., secretary.

North East Alabama Veterinary Medical Association, the second Tuesday of every other month. Leonard J. Hill, P.O. Box 761, Gadsden, Ala., secretary-treasurer.

ARIZONA—Central Arizona Veterinary Medical Association, the second Tuesday of each month. Keith T. Maddy, Phoenix, Ariz., secretary.

### Important Correction — in Squibb Advertisement

E. R. Squibb & Sons wish to advise veterinarians of an error in their four-page insert in the March 1, 1958, and their two-page insert appearing in this issue between adv. pages 40-41. In the chart comparing the spectrum of activity of Neomycin, it should have shown by red "cross-hatching" as being effective against *Pseudomonas* under the category "gram-negative bacteria." The Squibb Veterinary Department advises us that this was an omission of a mechanical nature in the art work.

Neomycin is effective against all of the following: staphylococci and streptococci under gram-positive bacteria; *Shigella*, coliforms, *Hemophilus*, *Proteus*, and *Pseudomonas* under gram-negative bacteria.

Southern Arizona Veterinary Medical Association, the third Wednesday of each month at 7:30 p.m. E. T. Anderson, Rt. 2 Box 697, Tucson, Ariz., secretary.

CALIFORNIA—Alameda-Contra Costa Veterinary Medical Association, the fourth Wednesday of Jan., March, May, June, Aug., Oct., and Nov. Leo Goldson, 3793 Broadway, Oakland 11, Calif., secretary.

Bay Counties Veterinary Medical Association, the second Tuesday of February, April, July, September, and December. Herb Warren, 3004 16 St., San Francisco, Calif., executive secretary.

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For Prevention and Treatment of—

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- **Cecal Coccidiosis** (bloody) in chicken flocks
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Each ounce of powder contains 437.5 gr. pure Sodium Arsanilate (equivalent to 181.03 gr. of Arsenic Trioxide).

Mixes with feed or water. Easily-prepared concentrated solution. One 12-oz. jar medicates 800 gallons of drinking water for swine. 4 oz. medicates 1 ton feed. For growth stimulation, use half strength.

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*Trans-Jector,<sup>®</sup> Nicholson's NEW  
all-transistor bull/ram ejaculator  
weighs only 16½ pounds!*

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by Donald M. Nicholson



I am very proud to be writing this article about our new Trans-Jector because it marks the successful conclusion of prolonged testing and study in this field!

Our new Trans-Jector is the first bull/ram ejaculator really designed for field conditions. You see, we made it with *electronic transistors* instead of old-fashioned fragile vacuum tubes!

**Weights Only 16½ Pounds.** Transistors mean you can lug it around easily — for it weighs only 16½ pounds! Other models (with vacuum tubes) in this line weigh as much as 75 pounds! The size is only 4" x 7" x 13".

Since we used transistors, the Trans-Jector is *not* a fragile instrument. It can take abuse. We made it to go anywhere.

The probe for this unit weighs only two pounds! Veterinarians now using the Trans-Jector have approved its lightness, dependability and easy portability. The unit complete FOB Denver costs \$469.00.

**Portable Field Laboratory.** In addition to this equipment, we have built as an acces-

sory a complete portable field laboratory. This is a thermostatically controlled, heated case which will contain your microscope, slides, cover plates, sub-stage lamp — all maintained at body temperature! This unit costs \$195.00 FOB Denver.

Also, for a portable power supply, we offer a choice of converters taking power off your car battery — or a generator replacement for your car that will deliver guaranteed extra power to operate the Trans-Jector.

**Coupon Brings Details.** I will be pleased to send you complete information about the Trans-Jector by return mail if you will fill in the coupon below. There is no charge or obligation. Mail the coupon today please.

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## NEOTHION<sup>\*</sup>

VETERINARY (Squibb Thiostrepton-Neomycin  
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THE NEWEST BROAD SPECTRUM FORMULATION  
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### NEOTHION contains THIOSTREPTON

an important new antibiotic isolated by **SQUIBB**, plus  
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**WITH THE INTRODUCTION OF NEOTHION**, an important new antibiotic makes its bow to the veterinary profession: *Thiostrepton*.

Thiostrepton was isolated at the Squibb Research Laboratories and quickly recognized as an antibiotic of unusual potential. Tests soon confirmed its early promise, and proved beyond doubt that a new antibiotic had been discovered which makes possible a degree of control over mastitis never before achieved.

Of particular importance to veterinarians is Thiostrepton's high order of activity against mastitis-causing organisms which are becoming increasingly more resistant to the antibiotics now in general use.

**THIOSTREPTON COMBINED WITH NEOMYCIN.** Thiostrepton is highly effective against gram-positive cocci. Combined with Neomycin, the resulting formula offers veterinarians a broader spectrum than any other single antibiotic now available for the treatment of mastitis. Christened NEOTHION, this new Squibb product is today's effective answer to the problem of *fast, effective, safe and economical* anti-mastitis therapy.

**NEOTHION PENETRATES MASTITIS "RESISTANCE BARRIER."** Present-day antibiotics are becoming less and less effective because mastitis-causing bacteria are becoming more

and more resistant to them. Because of its high order of activity against these resistant bacteria, NEOTHION controls *all known types* of bacterial mastitis with greater speed and dependability. Further, because NEOTHION contains more highly effective antibiotics, a lower dosage level can be used with the full confidence that a superior treatment has been administered.

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### SAFE, FAST AND EFFECTIVE FOR TREATMENT OF

- all known types of bacterial mastitis, both chronic and acute
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- no undesirable side reactions
- cannot harm the most delicate udder tissue
- free from hazard of sensitization reactions from penicillin
- made with exclusive Squibb Plastibase® for rapid release of antibiotics, ease of application and proper consistency.

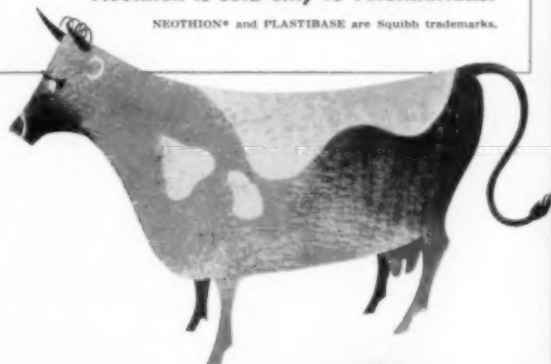
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Triple Sulfas									
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**DOSAGE** Acute mastitis: contents of 1 syringe of Neothion in each infected quarter every 12 hours or after each regular milking. Inflammation generally subsides and milk regains normal appearance after 1 to 6 infusions.

Chronic mastitis: contents of 1 syringe of Neothion in each infected quarter every 12 hours or after each regular milking. Continue treatment for 1 to 3 instillations or until milk regains normal appearance and other signs of infection disappear.

**SUPPLY** Neothion Veterinary is supplied in 1-dose syringes containing 50,000 units of Thiostrepton plus 150 mg. of Neomycin.

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Central California Veterinary Medical Association, the fourth Tuesday of each month. R. B. Baralesau, 2333 E. Mineral King, Visalia, Calif., secretary.

Kern County Veterinary Medical Association, the first Thursday evening of each month. A. L. Irwin, 301 Taft Highway, Bakersfield, Calif., secretary.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. W. H. Rockey, P. O. Box 121, San Luis Obispo, Calif., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. Lewis J. Campbell, 90 Corral de Tierra, Salinas, Calif., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month at the Hotel Covell, in Modesto, Calif. Lyle A. Baker, Turlock, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. Chester A. Maeda, 766 E. Highland Ave., San Bernardino, Calif., secretary.

Orange County Veterinary Medical Association, the third Thursday of each month, Donald E. Lind, 2643 N. Main St., Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. R. M. Granfield, 2600 W. El Camino Real, San Mateo, Calif., secretary-treasurer.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. Robert E. Clark, Napa, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. W. E. Steinmetz, 4227 Freeport Blvd., Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. H. R. Rossoll, 1795 Moore St., San Diego, Calif., secretary.

San Fernando Valley Chapter SCVMA, the second Tuesday of each month at 7:30 p.m., Hody's Restaurant, North Hollywood, Calif. Dr. V. H. Austin, 14931 Oxnard St., Van Nuys, secretary-treasurer.

San Fernando Valley Veterinary Medical Association, the second Friday of each month at the Casa Escobar Restaurant in Studio City. Dr. Rolf Reese, 23815 Ventura Blvd., Calabasas, Calif., secretary.

Santa Clara Valley Veterinary Association, the fourth Tuesday of each month. Kay Beulley, N. Fourth and Gish Rd., San Jose, Calif., secretary.

Southern California Veterinary Medical Association, the last Wednesday of each month. Don Mahan, 1919 Wilshire Blvd., Los Angeles 57, Calif., executive secretary.

Tulare County Veterinary Medical Association, the second Thursday of each month. D. E. Britten, 544 N. Ben Maddox, Visalia, Calif., secretary.

COLORADO—Denver Area Veterinary Society, the fourth Tuesday of every month. Richard C. Tolley, 5060 S. Broadway St., Englewood, Colo., secretary.

Northern Colorado Veterinary Medical Society, the first Monday of each month. M. A. Hammalund, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo., secretary.

DELAWARE—New Castle County Veterinary Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. E. J. Hathaway, Clifton Park Manor, Apt. 73-5, Wilmington 2, Del., secretary.

FLORIDA—Central Florida Veterinary Medical Association, the first Tuesday of each month, time and place specified monthly. Jack H. McElyer, 5925 Edgewater Drive, Orlando, Fla., secretary.

Florida West Coast Veterinary Medical Association, the second Wednesday of each month at the Lighthouse Inn, in St. Petersburg. R. L. Brutus, 336 E. 15th St., Hialeah, Fla., secretary.

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Jacksonville Veterinary Medical Association, the first Thursday of every month. Dodsons Restaurant, P. S. Roy, 4443 Atlantic Blvd., Jacksonville, Fla., secretary.

Northwest Florida Veterinary Medical Society, third Wednesday of each month, time and place specified monthly. T. R. Geci, 108B Catherine Ave., Pensacola, Fla., secretary.

Palm Beach Veterinary Society, the last Thursday of each month in the county office building at 810 Datura St., West Palm Beach. J. J. McCarthy, 500-25th Street, West Palm Beach, Fla., secretary.

Ridge Veterinary Medical Association, the fourth Thursday of each month in Bartow, Fla. Paul J. Myers, Winter Haven, Fla., secretary.

South Florida Veterinary Society, the third Wednesday of each month. Time and place specified monthly. Frank Mueller, Jr., 4148 E. 8th Ave., Hialeah, Fla., secretary.

Suwannee Valley Veterinary Association, the fourth Tuesday of each month, Hotel Thomas, Gainesville. W. B. Martin, Jr., 3002 N. W. 6th St., Gainesville, Fla., secretary.

Volusia County Veterinary Medical Association, the fourth Thursday of each month. A. E. Hixon, 131 Mary St., Daytona Beach, Fla., secretary.

GEORGIA—Atlanta Veterinary Society, the third Thursday of each month at the Elk's Home, 726 Peachtree St., Atlanta. Donald C. Ford, Forest Park, secretary.

ILLINOIS—Chicago Veterinary Medical Association, the second Tuesday of each month. Mark E. Davenport, Jr., 215 S. Edgewood Ave., LaGrange, Ill., secretary.

Eastern Illinois Veterinary Medical Association, the first Thursday of March, June, September, and December.

A one-day clinic is held in May. Alfred G. Schiller, Veterinary Clinic, University of Illinois, Urbana, secretary-treasurer.

INDIANA—Central Indiana Veterinary Medical Association, the second Wednesday of each month. Peter Johnson, Jr., 4410 N. Keystone Ave., Indianapolis 5, secretary.

Michiana Veterinary Medical Association, the second Thursday of every month except July and December, at the Hotel LaSalle, South Bend, Ind. J. M. Carter, 3421 S. Main St., Elkhart, Ind., secretary.

Tenth District Veterinary Medical Association, the third Thursday of each month. J. S. Baker, P. O. Box 52, Pendleton, Ind., secretary.

IOWA—Cedar Valley Veterinary Medical Association, the second Monday of each month, except January, July, August, and October in Black's Tea Room, Waterloo, Iowa. A. J. Cotten, Grundy Center, secretary.

Central Iowa Veterinary Medical Association, the third Monday of each month, except June, July, and August, at 6:30 p.m., Breeze House, Ankeny, Iowa. John Herrick, Ames, secretary.

Coon Valley Veterinary Medical Association, the second Wednesday of each month, September through May, at 7:30 p.m., Cobblestone Inn, Storm Lake, Iowa. Robert McCutcheon, Holstein, secretary.

East Central Iowa Association, the second Thursday of each month at 6:30 p.m., usually in Cedar Rapids, Iowa. Dr. J. G. Irwin, Iowa City, secretary.

Fayette County Veterinary Medical Association, the third Thursday of each month at 6:30 p.m. in West Union, Iowa. H. J. Morgan, West Union, secretary.

Lakes Veterinary Association, the first Tuesday of each month, September through May, at 6:30 p.m., at the

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Gardson Hotel, Estherville, Iowa. Barry Barnes, Milford, secretary.

North Central Iowa Veterinary Medical Association, the third Thursday of April, at the Warden Hotel, Fort Dodge, Iowa. H. Engelbrecht, P. O. Box 797, Fort Dodge, secretary.

Northeast Iowa-Southern Minnesota Veterinary Association, the first Tuesday of February, May, August, and November at the Wineslick Hotel, Decorah, Iowa, 6:30 p.m. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Northwest Iowa Veterinary Medical Association, the second Tuesday of February, May, September, and December, at the Community Bldg., Sheldon. W. Ver Meer, Hull, secretary.

Southeastern Iowa Veterinary Association, the first Tuesday of each month at Mt. Pleasant, Iowa. Warren Kilpatrick, Mediapolis, secretary.

Southwestern Iowa Veterinary Medical Association, the first Tuesday of April and October, Hotel Chieftain, Council Bluffs, Iowa. J. P. Stream, Creston, secretary.

Upper Iowa Veterinary Medical Association, the third Tuesday of each month at 7:00 p.m., at All Vets Center, Clear Lake, Iowa. Richard Baum, Osage, secretary.

**KENTUCKY**—Central Kentucky Veterinary Medical Association, the first Wednesday of each month. L. S. Shirrell, Versailles Rd., Frankfort, secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month in Louisville or within a radius of 50 miles. W. E. Bewley, P.O. Box "H," Crestwood, secretary.

**MARYLAND**—Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m., at the Park Plaza Hotel, Charles and Madison St., Baltimore,

Md. Norman Herbert, 3506 Joann Drive, Baltimore 7, Md., secretary.

**MICHIGAN**—Mid-State Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert E. Kader, 5034 Armstrong Rd., Lansing 17, Mich., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. S. Correll, Rt. 1, Midland, Mich., secretary.

Southeastern Veterinary Medical Association, the fourth Wednesday of every month, September through May. Gilbert Meyer, 14003 E. Seven Mile Rd., Detroit 5, Mich., secretary.

**MISSOURI**—Greater St. Louis Veterinary Medical Association, the first Friday of each month (except July and August), at the Coronado Hotel, Lindell Blvd. and Spring Ave., St. Louis, Mo., at 8 p.m. Chester R. Pledge, 4249 Peck St., St. Louis 7, Mo., secretary.

Kansas City Veterinary Medical Association and Kansas City Small Animal Hospital Association, the third Thursday of each month at the Hotel President, Kansas City, Mo. Frank A. O'Donnell, Parkville, Mo., secretary-treasurer.

**NEW JERSEY**—Central New Jersey Veterinary Medical Association, the second Thursday of November, January, March, and May at Old Hights Inn, Hightstown, N. J. David C. Tudor, Cranbury, N. J., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from October through April at the Academy of Medicine, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Milburn Ave., Maplewood, N. J., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday of each month at the Elks Club, Hackensack. Burritt Lupton, 569 Franklin Ave., Wyckoff, secretary.

Northwest Jersey Veterinary Society, the third Wednesday of every odd month. G. R. Muller, 43 Church St., Lambertville, N. J., secretary.

Southern New Jersey Veterinary Medical Association, the fourth Tuesday of each month at the Collingswood Veterinary Hospital, Collingswood. R. M. Sauer, secretary.

**NEW MEXICO**—Bernalillo County Veterinary Practitioner's Association, third Wednesday of each month, Fex Club, Albuquerque, N.M. Jack Ambrose, 3018 N. Rio Grande Blvd., Albuquerque, secretary-treasurer.

**NEW YORK**—New York City, Inc., Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63rd St., New York City. C. E. DeCamp, 43 West 61st St., New York 23, N. Y., secretary.

New York State Veterinary College, Annual conference for veterinarians. Cornell University, Ithaca. W. A. Hagan, New York State Veterinary College, Cornell University, Ithaca, N. Y., dean.

Monroe County Veterinary Medical Association, the first Thursday of even-numbered months except August. Irwin Bircher, 50 University Ave., Rochester, N. Y., secretary.

**NORTH CAROLINA**—Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel, Greensboro. Joseph A. Lombardo, 411 Woodlawn Ave., Greensboro, secretary.

Eastern North Carolina Veterinary Medical Association, the first Friday of each month, time and place specified monthly. Byron H. Brow, Box 453, Goldsboro, N. Car., secretary.

Piedmont Veterinary Medical Association, the last Friday of each month. Ted L. James, Box 243, Newton, N. Car. Twin Carolinas Veterinary Medical Association, the

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Western North Carolina Veterinary Medical Association, the second Thursday of every month at 7:00 p.m. in the George Vanderbilt Hotel, Asheville, N. Car. Vito Lind, 346 State St., Marion, N. Car., secretary.

**OHIO**—Cincinnati Veterinary Medical Association, the third Tuesday of every month at Shuller's Wigwam, 6210 Hamilton Ave., at North Bend Road. G. C. Lewis, Cincinnati, Ohio, secretary-treasurer.

Columbus Academy of Veterinary Medicine, every month, September through May. E. M. Simonson, Columbus, Ohio, secretary-treasurer.

Cuyahoga County Veterinary Medical Association, the first Wednesday in September, October, December, February, March, April, and May, at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. F. A. Coy, Cleveland, Ohio, secretary.

Dayton Veterinary Medical Association, the third Tuesday of every month. O. W. Fallang, Dayton, secretary.

Killbuck Valley Veterinary Medical Association, the first Wednesday of alternate months beginning with February. D. J. Kern, Killbuck, Ohio, secretary-treasurer.

Mahoning County Veterinary Medical Association, the third Tuesday of each month, at 9:00 p. m., Youngstown Maennerchor Club, Youngstown, Ohio. Sam Segall, 2935 Glenwood Ave., Youngstown, secretary.

Miami Valley Veterinary Medical Association, the first Wednesday of December, March, June, and September. J. M. Westfall, Greenville, Ohio, secretary-treasurer.

North Central Ohio Veterinary Medical Association, the last Wednesday of each month except during the summer. R. W. McClung, Tiffin, Ohio, secretary-treasurer.

Northwestern Ohio Veterinary Medical Association, the last Wednesday of March and July. C. S. Alvanos, Toledo, Ohio, secretary-treasurer.

Stark County Veterinary Medical Association, the second Tuesday of every month, at McBrides Emerald Lounge, Canton, Ohio. M. L. Willen, 4423 Tuscarawas St., Canton, Ohio, secretary.

Summit County Veterinary Medical Association, the last Tuesday of every month (except June, July, and August), at the Mayflower Hotel, Akron, Ohio. M. L. Scott, Akron, Ohio, secretary-treasurer.

Tri-County Veterinary Medical Association, the fourth Wednesday of January, May, and September. Mrs. R. Slusher, Mason, Ohio, secretary-treasurer.

**OKLAHOMA**—Oklahoma County Veterinary Medical Association, the second Wednesday of every month, 7:30 p.m., Patrick's Foods Cafe, 1016 N.W. 23rd St., Oklahoma City. Forest H. Stockton, 2716 S.W. 29th St., Oklahoma City, Okla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month in Directors' Parlor of the Brookside State Bank, Tulsa, Okla. Don L. Hohmann, 538 S. Madison St., Tulsa, Okla., secretary.

**OREGON**—Portland Veterinary Medical Association, the second Tuesday of each month, at 7:30 p.m., Ireland's Restaurant, Lloyd's, 718 N.E. 12th Ave., Portland. Donald L. Moyer, 8415 S.E. McLoughlin Blvd., Portland 2, Ore., secretary.

Willamette Veterinarian Medical Association, the third Tuesday of each month, except July and August, at the Marion Hotel, Salem. Marvin M. Corff, McMinnville, Ore., secretary.

**PENNSYLVANIA**—Keystone Veterinary Medical Association, the fourth Wednesday of each month at the University of Pennsylvania, School of Veterinary Medicine. Raymond C. Snyder, N. E. Corner 47th St. and Hazel Ave., Philadelphia 43, Pa., secretary.

Lehigh Valley Veterinary Medical Association, the first Tuesday of each month. Stewart Rockwell, 10th and Chestnut Sts., Emmaus, Pa., secretary.

Pennsylvania Northern Tier Veterinary Medical Association, the third Wednesday of each odd numbered month. R. L. Michel, Troy, Pa., secretary.

**SOUTH CAROLINA**—Piedmont Veterinary Medical Association, the third Wednesday of each month at the Fairforest Hotel, Union, S. Car. Worth Lanier, York, S. Car., secretary.

**TEXAS**—Coastal Bend Veterinary Association, the second Wednesday of each month. J. Marvin Prewitt, 4141 Lexington Blvd., Corpus Christi, Texas, secretary.

**VIRGINIA**—Central Virginia Veterinarians' Association, the third Thursday of each month at the William Byrd Hotel in Richmond at 8:00 p.m. M. R. Levy, 312 W. Cary Ct., Richmond 20, Va., secretary.

Northern Virginia Veterinary Conference, the second Tuesday of each month. Francis E. Mullen, 1130 S. Main St., Harrisonburg, Va., secretary-treasurer.

Northern Virginia Veterinary Society, the Second Wednesday of every third month. Meeting place announced by letter. H. C. Newman, Box 145, Merrifield, secretary.

Southwest Virginia Veterinary Medical Association, the first Thursday of each month. I. D. Wilson, Blackburg, secretary.

**WASHINGTON**—Seattle Veterinary Medical Association, the third Monday of each month, Magnolia American Legion Hall, 2870 32nd W., Seattle, Wash. William S. Green, 9637 S. E. 36th, Mercer Island, Wash., secretary.

South Puget Sound Veterinary Association, the second Thursday of each month except July and August. O. I. Bailey, P. O. Box 906, Olympia, Wash., secretary.

**WEST VIRGINIA**—Kyowva (Ky., Ohio, W. Va.) Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Harry J. Fallon, 200 9th St., W. Huntington, W. Va., secretary.

**WISCONSIN**—Central Wisconsin Veterinary Medical Association, the second Tuesday of each quarter (March, June, Sept., Dec.). R. J. O'Hern, P.O. Box 617, Cumberland, Wis., secretary.

Dane County Veterinary Medical Association, the second Thursday of each month. Dr. E. P. Pope, 409 Farley Ave., Madison, Wis., secretary.

Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House, Blue Mound Rd. Dr. R. H. Steinkraus, 7701 N. 59th St., Milwaukee, Wis., secretary.

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# HOTEL RESERVATIONS — PHILADELPHIA CONVENTION

**Ninety-Fifth Annual AVMA Meeting, Aug. 18-21, 1958**

*All requests for hotel accommodations will be handled by a Housing Bureau in cooperation with the Committee on Local Arrangements. The Bureau will clear all requests and confirm reservations.*

Hotels and Rate Schedule

Hotel	Single	Double	Twin	Suite
1. Bellevue-Stratford †	\$ 9.00-11.00	\$12.00-16.00	\$12.00-17.00	\$30.00-50.00*
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Northeastern Wisconsin Veterinary Medical Association, the third Wednesday in April. William Madson, 218 E. Washington St., Appleton, Wis., secretary.

Rock Valley Veterinary Medical Association, the first Wednesday of each month. W. E. Lyle, P. O. Box 107, Deerfield, Wis., secretary.

Southeastern Veterinary Medical Association, the third Thursday of each month. John R. Curtis, 419 Cook St., Portage, Wis., secretary.

Wisconsin Valley Veterinary Medical Association, the second Tuesday of every other month. E. S. Scobell, Rt. 2, Wausau, Wis., secretary.

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\*Chambers, E. E.: N. Am. Vet. 37:105 (Feb.) 1956.

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